UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

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

For the fiscal year ended December 31, 2019
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: 000-21467

PACIFIC ETHANOL, INC.
(Exact name of registrant as specified in its charter)

Delaware	**41-2170618**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
400 Capitol Mall, Suite 2060, Sacramento, California	**95814**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (916) 403-2123

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

Title of each Class	Trading Symbol	Name of Exchange on Which Registered
Common Stock, $0.001 par value	PEIX	The Nasdaq Stock Market LLC (Nasdaq Capital 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 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 such files). Yes ☒ No☐

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

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

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

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

The aggregate market value of the voting and non-voting common equity held by nonaffiliates of the registrant computed by reference to the closing sale price of such stock, was approximately $36.4 million as of June 28, 2019, the last business day of the registrant's most recently completed second fiscal quarter.

As of March 27, 2020, there were 55,893,014 shares of the registrant's common stock, $0.001 par value per share, and 896 shares of the registrant's non-voting common stock, $0.001 par value per share, outstanding.

DOCUMENTS INCORPORATED BY REFERENCE: Part III incorporates by reference certain information from the registrant's proxy statement (the "Proxy Statement") for the 2020 Annual Meeting of Stockholders to be filed on or before April 29, 2020.

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CAUTIONARY STATEMENT

All statements included or incorporated by reference in this Annual Report on Form 10-K, other than statements or characterizations of historical fact, are forward-looking statements. Examples of forward-looking statements include, but are not limited to, statements concerning projected net sales, costs and expenses and gross margins; our ability to timely and successfully implement our strategic initiatives; our ability to continue as a going concern; our accounting estimates, assumptions and judgments; the demand for ethanol and its co-products; the competitive nature of and anticipated growth in our industry; production capacity and goals; our ability to consummate acquisitions and integrate their operations successfully; and our prospective needs for additional capital. These forward-looking statements are based on our current expectations, estimates, approximations and projections about our industry and business, management's beliefs, and certain assumptions made by us, all of which are subject to change. Forward-looking statements can often be identified by words such as "anticipates," "expects," "intends," "plans," "predicts," "believes," "seeks," "estimates," "may," "will," "should," "would," "could," "potential," "continue," "ongoing," similar expressions and variations or negatives of these words. These statements are not guarantees of future performance and are subject to risks, uncertainties and assumptions that are difficult to predict. Therefore, our actual results could differ materially and adversely from those expressed in any forward-looking statements as a result of various factors, some of which are listed under "Risk Factors" in Item 1A of this report. These forward-looking statements speak only as of the date of this report. We undertake no obligation to revise or update publicly any forward-looking statement for any reason, except as otherwise required by law.

PART I

Item 1. Business.

Recent Developments

We, and the ethanol industry as a whole, experienced significant adverse conditions throughout most of 2018 and 2019, and thus far into 2020, as a result of industry-wide record low ethanol prices due to reduced demand and high industry inventory levels. These factors, which are compounded by the impact of the novel coronavirus in 2020, resulted and continue to result in negative operating margins, significantly lower cash flow from operations and substantial net losses. In response to the low margin environment, we have reduced production and have pursued strategic initiatives focused on the sale of certain production assets, a reduction of our debt levels, a strengthening of our cash and liquidity position, and opportunities for strategic partnerships and capital raising activities, positioning us to optimize our business performance. Our most significant challenges in meeting these objectives would be a sustained adverse margin environment and insufficient cash flow to fund operations or make our debt payments.

We do not expect to have sufficient liquidity to meet our anticipated working capital, debt service and other liquidity needs unless we successfully restructure our debt, sell assets, experience a significant improvement in margins and/or obtain other sources of liquidity. We have reduced production at our facilities by more than 60% due to market conditions and in an effort to conserve capital. If margins do not promptly and sustainably improve from current levels, we may be forced to further curtail or cease production at one or more of our operating facilities. See “Risk Factors” and “Management’s Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources”.

On February 28, 2020, we entered into a membership interest purchase agreement with Aurora Cooperative Elevator Company, or ACEC, to sell our full 73.93% ownership interest in Pacific Aurora, LLC, or Pacific Aurora, to ACEC for total consideration of $52.8 million, subject to certain working capital adjustments, payable in cash and $16.5 million in ACEC promissory notes. ACEC currently owns 26.07% of Pacific Aurora.

Business Overview

We are a leading producer and marketer of low-carbon renewable fuels in the United States.

We operate nine strategically-located production facilities. Four of our plants are in the Western states of California, Oregon and Idaho, and five of our plants are located in the Midwestern states of Illinois and Nebraska. We are the sixth largest producer of ethanol in the United States based on annualized volumes. Our plants have a combined production capacity of 605 million gallons per year. We market all the ethanol, specialty alcohols and co-products produced at our plants as well as ethanol produced by third parties. On an annualized basis, we market nearly 1.0 billion gallons of ethanol and over 3.0 million tons of ethanol co-products on a dry matter basis. Our business consists of two operating segments: a production segment and a marketing segment.

Our mission is to be a leading producer and marketer of low-carbon renewable fuels, high-value animal feed and high-quality alcohol products in the United States. We intend to accomplish this goal in part by investing in our ethanol production and distribution infrastructure, lowering the carbon intensity of our ethanol, extending our marketing business into new regional and international markets, and implementing new technologies to promote higher production yields and greater efficiencies.

Production Segment

We produce ethanol, specialty alcohols and co-products at our production facilities described below. Our plants located on the West Coast are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages. Our plants located in the Midwest are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock production and allow for access to many additional domestic markets. In addition, our ability to load unit trains from our plants located in the Midwest, and barges from our Pekin, Illinois plants, allows for greater access to international markets.

We wholly-own all of our plants located on the West Coast and the three plants in Pekin, Illinois. Pacific Aurora owns the two plants in Aurora, Nebraska as well as the grain elevator adjacent to those properties and related grain handling assets, including the outer rail loop, and the real property on which they are located.

All of our plants, except our Stockton and Aurora East facilities, are currently operating. Our Stockton facility was idled in March 2020, and our Aurora East facility was idled in December 2018 due to unfavorable market conditions. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Facility Name	Facility Location	Estimated Annual Capacity (gallons)
Magic Valley	Burley, ID	60,000,000
Columbia	Boardman, OR	40,000,000
Stockton	Stockton, CA	60,000,000
Madera	Madera, CA	40,000,000
Aurora West*	Aurora, NE*	110,000,000*
Aurora East*	Aurora, NE*	45,000,000*
Pekin Wet	Pekin, IL	100,000,000
Pekin Dry	Pekin, IL	60,000,000
Pekin ICP	Pekin, IL	90,000,000

* Sale pending.

We produce ethanol co-products at our production facilities such as wet distillers grains, or WDG, dry distillers grains with solubles, or DDGS, wet and dry corn gluten feed, condensed distillers solubles, corn gluten meal, corn germ, corn oil, dried yeast and CO_2.

Marketing Segment

We market ethanol, specialty alcohols and co-products produced by our facilities and market ethanol produced by third parties. We have extensive customer relationships throughout the Western and Midwestern United States. Our ethanol customers are integrated oil companies and gasoline marketers who blend ethanol into gasoline. Our customers depend on us to provide a reliable supply of ethanol, and manage the logistics and timing of delivery with very little effort on their part. Our customers collectively require ethanol volumes in excess of the supplies we produce at our production facilities. We secure additional ethanol supplies from third-party plants in California and other third-party suppliers in the Midwest where a majority of ethanol producers are located. We arrange for transportation, storage and delivery of ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our distillers grains and other feed co-products to dairies and feedlots, in many cases located near our ethanol plants. These customers use our feed co-products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market co-products from other ethanol producers.

See "Note 4 – Segments" to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Company History

We are a Delaware corporation formed in February 2005. Our common stock trades on The NASDAQ Capital Market under the symbol "PEIX." Our Internet website address is http://www.pacificethanol.com. Information contained on our website is not part of this Annual Report on Form 10-K. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to such reports filed with or furnished to the Securities and Exchange Commission and other Securities and Exchange Commission filings are available free of charge through our website as soon as reasonably practicable after the reports are electronically filed with, or furnished to, the Securities and Exchange Commission.

Business Strategy

Our primary goal is to be a leading producer and marketer of low-carbon renewable fuels, high-value animal feed and high-quality alcohol products in the United States. The key elements of our business and growth strategy to achieve this objective include:

- *Execute on our strategic initiatives*. We are pursuing strategic initiatives focused on the sale of certain production assets, a reduction of our debt levels, a strengthening of our cash and liquidity position, and on opportunities for strategic partnerships and capital raising activities, to position us to optimize our business performance.

- *Lower the carbon intensity of our ethanol*. We plan to further reduce the carbon intensity of the ethanol we produce. We are able to sell this lower carbon intensity ethanol in certain regions at premium prices compared to higher carbon intensity ethanol. We are able to charge premium prices for this ethanol based on state laws and regulations, such as Low-Carbon Fuel Standards enacted in California and Oregon that require blenders to use lower carbon intensity ethanol in their gasoline. When available and cost-effective, we intend to use feedstock other than corn, including cellulosic feedstock, as the raw material used in the production of ethanol to further reduce the carbon intensity of our ethanol.

- *Implement new equipment and technologies.* We intend to continue to evaluate and implement new equipment and technologies to increase our production and operating efficiencies, reduce our use of carbon-based fuels and improve our carbon scores, use diverse feedstocks, diversify products and revenues, including through our production of advanced biofuels, and improve our plant profitability as financial resources and market conditions justify these investments.

Competitive Strengths

We believe that our competitive strengths include the following:

- *Our customer and supplier relationships*. We have extensive business relationships with customers and suppliers throughout the United States. In addition, we have developed extensive business relationships with major and independent un-branded gasoline suppliers who collectively control the majority of all gasoline sales in those regions.

- *Our ethanol distribution network*. We believe we have a competitive advantage due to our experience in marketing to customers in major metropolitan and rural markets in the United States. We have developed an ethanol distribution network for delivery of ethanol by truck to virtually every significant fuel terminal as well as to numerous smaller fuel terminals throughout California and other Western states. Fuel terminals have limited storage capacity and we have successfully secured storage tanks at many of the terminals we service. In addition, we have an extensive network of third-party delivery trucks available to deliver ethanol throughout the Western United States. In the Midwest, we have the ability to sell and deliver products in bulk via unit trains providing us access to Western, gulf coast and international markets. Further, higher value co-products from our Illinois facilities can be sold at premium prices under fixed price, longer-term contracts (up to 12 months) thus providing a more stable source of revenue in what can be a volatile commodity industry.

- *Our* s*trategic locations*. We operate our ethanol plants in markets where we believe their individual locations, as well as our overall ethanol production and marketing platform, provide strategic advantages. Our production in both the Western United States and in the Midwest enables us to source ethanol from two different regions, which we believe allows us to address regional inefficiencies and other challenges such as rail congestion and other supply constraints, as well as pricing anomalies.

  - We operate four plants in the Western United States where we believe local characteristics create an opportunity to capture a significant production and shipping cost advantage over competing ethanol production facilities in other regions. We believe a combination of factors enables us to achieve this cost advantage, including:

    - Locations near fuel blending facilities lower our ethanol transportation costs while providing timing and logistical advantages over competing locations that require ethanol to be shipped over much longer distances, and in many cases require double-handling.

    - Locations adjacent to major rail lines allow the efficient delivery of corn in large unit trains from major corn-producing regions and allow for the efficient delivery of ethanol in large unit trains to other markets, including markets with higher demand.

    - Locations near large concentrations of dairy and/or beef cattle enable delivery of WDG, over short distances without the need for costly drying processes.

- We operate five plants in the Midwest which enables us to participate in the largest regional ethanol market in the United States as well as international markets. Our Midwest locations, coupled with our locations in the Western United States, also allow us many advantages over locations solely on the West Coast, including:

    - Locations in diverse markets assist us in spreading commodity and basis price risks across markets and products, supporting our efforts to optimize margin management.

    - Locations in the Midwest enhance our overall hedging opportunities with a greater correlation to the highly-liquid physical and paper markets in Chicago.

    - Locations in diverse markets support heightened flexibility and alternatives in feedstock procurement for our various production facilities.

    - Our Illinois facilities provide excellent logistical access via rail, truck and barge. The relatively unique wet milling process at one of our Illinois facilities allows us to extract the highest use and value from each component of the corn kernel. As a result, the wet milling process generates a higher level of cost recovery from corn than that produced at a dry mill.

    - Locations in the Midwest allow us deeper market insight and engagement in major ethanol and feed markets outside the Western United States, thereby improving pricing opportunities.

- *Our low carbon-intensity ethanol.* California and Oregon have enacted Low-Carbon Fuel Standards for transportation fuels. Under these Low-Carbon Fuel Standards, the ethanol we produce in the Western United States has a lower carbon-intensity than most ethanol produced at plants by other producers. This is primarily because our plants located on the West Coast use less energy in their production processes. The ethanol produced in California by other producers, all of which we market, also has a lower carbon-intensity rating than either gasoline or ethanol produced in the Midwest. The lower carbon-intensity rating of ethanol we produce at our plants located on the West Coast or otherwise resell from third-party California producers is valued in the market by our customers due to California’s Low Carbon Fuel Standard program, or LCFS, which has enabled us to capture premium prices for this ethanol.

- *Modern technologies*. Our plants use the latest production technologies to take advantage of state-of-the-art technical and operational efficiencies to achieve lower operating costs, higher yields and more efficient production of ethanol and its co-products and reduce our use of carbon-based fuels.

- *Our experienced management.* Our senior management team has a proven track record with significant operational and financial expertise and many years of experience in the ethanol, fuel and energy industries. Our senior executives, who average approximately 19 years of industry experience, have successfully navigated a wide variety of business and industry-specific challenges and deeply understand the business of successfully producing and marketing ethanol and its co-products.

We believe that these competitive strengths will help us attain our goal to be a leading producer and marketer of low-carbon renewable fuels, high-value animal feed and high-quality alcohol products in the United States.

Industry Overview and Market Opportunity

Overview of Ethanol Market

The primary applications for fuel-grade ethanol in the United States include:

- *Octane enhancer*. On average, regular unleaded gasoline has an octane rating of 87 and premium unleaded gasoline has an octane rating of 91. In contrast, pure ethanol has an average octane rating of 113. Adding ethanol to gasoline enables refiners to produce greater quantities of lower octane blend stock with an octane rating of less than 87 before blending. In addition, ethanol is commonly added to finished regular grade gasoline as a means of producing higher octane mid-grade and premium gasoline.

- *Fuel blending*. In addition to its performance and environmental benefits, ethanol is used to extend fuel supplies. In light of the need for transportation fuel in the United States and its historical dependence on foreign crude oil and refined products, the United States is increasingly seeking domestic sources of fuel. Much of the ethanol blending throughout the United States is done for the purpose of extending the volume of fuel sold at the gasoline pump.

- *Renewable fuels*. Ethanol is blended with gasoline to enable gasoline refiners to comply with a variety of governmental programs, in particular, the national Renewable Fuel Standard, or RFS, which was enacted to promote alternatives to fossil fuels. See "—Governmental Regulation."

The United States ethanol industry is supported by federal and state legislation and regulation. For example, the Energy Independence and Security Act of 2007, which was signed into law in December 2007, significantly increased the prior RFS. Under the RFS, the mandated use of all renewable fuels rises incrementally in succeeding years and peaks at 36.0 billion gallons by 2022. Under the RFS, approximately 14.5 billion gallons in 2016 and 15.0 billion gallons in 2017 and 2018 were required from conventional, or corn-based, ethanol. Under the RFS, 15.0 billion gallons are required from conventional ethanol through 2022. The RFS allows the Environmental Protection Agency, or EPA, to adjust the annual requirement based on certain facts.

According to the Renewable Fuels Association, the domestic ethanol industry produced 15.8 billion gallons of ethanol in 2019. We believe that the ethanol market in California alone represented approximately 10% of the national market. However, the Western United States has relatively few ethanol facilities and local ethanol production levels are substantially below the local demand for ethanol. The balance of ethanol is shipped via rail from the Midwest to the Western United States. Gasoline and diesel fuel that supply the major fuel terminals are shipped in pipelines throughout portions of the Western United States. Unlike gasoline and diesel fuel, however, ethanol is not shipped in these types of pipelines because ethanol has an affinity for mixing with water already present in the pipelines. When mixed, water dilutes ethanol and creates significant quality control issues. Therefore, ethanol must be trucked from rail terminals to regional fuel terminals, or blending racks.

We believe that approximately 90% of the ethanol produced in the United States is made in the Midwest from corn. According to the Department of Energy, or DOE, ethanol is generally blended at a rate of 10% by volume, but is also blended at a rate of up to 85% by volume for vehicles designed to operate on 85% ethanol. The EPA has increased the allowable blend of ethanol in gasoline from 10% by volume to 15% by volume for model year 2001 and newer automobiles, pending final approvals by certain state regulatory authorities. Some retailers have begun blending at higher rates in states that have approved higher blend rates.

Compared to gasoline, ethanol is generally considered to be cleaner burning and contains higher octane. We anticipate that the increasing demand for renewable transportation fuels coupled with limited opportunities for gasoline refinery expansions and the growing importance of reducing CO_2 emissions through the use of renewable fuels will generate additional growth in the demand for ethanol.

According to the DOE, total annual gasoline consumption in the United States is approximately 142 billion gallons and total annual ethanol consumption represented approximately 10% of this amount in 2019. The domestic ethanol industry has substantially reached this 10% blend ratio, and we believe the industry has significant potential for growth in the event the industry can migrate to an up to 15% blend ratio, which would translate into an annual demand of up to 20 billion gallons of ethanol.

On December 19, 2019 the EPA released a final rule which set the 2020 renewable volume obligation, or RVO, as part of the EPA's annual volume-setting responsibility under the RFS. For total renewable fuel, the RVO was finalized at 20.09 billion gallons, up 170 million gallons when compared to an RVO of 19.92 billion gallons set for 2019. We believe this is a step forward for the renewable fuels industry with the RVO for 2020 sending a strong signal to the marketplace through a 15 billion gallon commitment to conventional ethanol and a 418 million gallon commitment for cellulosic biofuels.

Overview of Ethanol Production Process

Ethanol production from starch- or sugar-based feedstock is a highly-efficient process that we believe yields substantially more energy from ethanol and its co-products than is required to make the products. The modern production of ethanol requires large amounts of corn, or other high-starch grains, and water as well as chemicals, enzymes and yeast, and denaturants including unleaded gasoline or liquid natural gas, in addition to natural gas and electricity.

Dry Milling Process

In the dry milling process, corn or other high-starch grain is first ground into meal, then slurried with water to form a mash. Enzymes are then added to the mash to convert the starch into the simple sugar, dextrose. Ammonia is also added for acidic (pH) control and as a nutrient for the yeast. The mash is processed through a high temperature cooking procedure, which reduces bacteria levels prior to fermentation. The mash is then cooled and transferred to fermenters, where yeast is added and the conversion of sugar to ethanol and CO_2 begins.

After fermentation, the resulting "beer" is transferred to distillation, where the ethanol is separated from the residual "stillage." The ethanol is concentrated to 190 proof using conventional distillation methods and then is dehydrated to approximately 200 proof, representing 100% alcohol levels, in a molecular sieve system. The resulting anhydrous ethanol is then blended with about 2.5% denaturant, which is usually gasoline, and is then ready for shipment to market.

The residual stillage is separated into a coarse grain portion and a liquid portion through a centrifugation process. The soluble liquid portion is concentrated to about 40% dissolved solids by an evaporation process. This intermediate state is called condensed distillers solubles, or syrup. The coarse grain and syrup portions are then mixed to produce WDG or can be mixed and dried to produce DDGS. Both WDG and DDGS are high-protein animal feed products.

Wet Milling Process

In the wet milling process, corn or other high-starch grain is first soaked or "steeped" in water for 24 – 48 hours to separate the grain into its many components. After steeping, the corn slurry is processed first to separate the corn germ, from which the corn oil can be further separated. The remaining fiber, gluten and starch components are further separated and sold.

The steeping liquor is concentrated in an evaporator. The concentrated product, called heavy steep water, is co-dried with the fiber component and is then sold as corn gluten feed. The gluten component is filtered and dried to produce corn gluten meal.

The starch and any remaining water from the mash is then processed into ethanol or dried and processed into corn syrup. The fermentation process for ethanol at this stage is similar to the dry milling process.

Overview of Distillers Grains Market

Distillers grains are produced as a co-product of ethanol production and are valuable components of feed rations primarily to dairies and beef cattle markets, both nationally and internationally. Our plants produce both WDG and DDGS. WDG is sold to customers proximate to the plants and DDGS is delivered by truck, rail and barge to customers in domestic and international markets.

Producing WDG also allows us to use up to one-third less process energy, thus reducing production costs and lowering the carbon footprint of these plants, thereby increasing demand in California where premiums are paid for the low-carbon attributes.

Historically, the market price for distillers grains has generally tracked the value of corn. We believe that the market price of WDG and DDGS is determined by a number of factors, including the market value of corn, soybean meal and other competitive ingredients, the performance or value of WDG and DDGS in a particular feed formulation and general market forces of supply and demand, including export markets for these co-products. The market price of distillers grains is also often influenced by nutritional models that calculate the feed value of distillers grains by nutritional content, as well as reliability of consistent supply.

Customers

We market and sell through our wholly-owned subsidiary, Kinergy Marketing LLC, or Kinergy, all of the ethanol produced by our production facilities. Kinergy also markets ethanol produced by third parties. We have extensive customer relationships throughout the Western and Midwestern United States. Our ethanol customers are integrated oil companies and gasoline marketers who blend ethanol into gasoline. Our customers depend on us to provide a reliable supply of ethanol, and manage the logistics and timing of delivery with very little effort on their side. Our customers collectively require ethanol volumes in excess of the supplies we produce at our production facilities. We secure additional ethanol supplies from third-party plants in California and other third-party suppliers in the Midwest where a majority of ethanol producers are located. We arrange for transportation, storage and delivery of ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We also market all of the co-products produced at our plants. We do not market co-products from other ethanol producers. Our co-products include WDG, DDGS, wet and dry corn gluten feed, condensed distillers solubles, corn gluten meal, corn germ, corn oil, dried yeast and CO_2. We market our distillers grains and other feed co-products to dairies and feedlots, in many cases located near our ethanol plants. These customers use our feed co-products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers.

Our production segment generated $800.3 million and $859.8 million in net sales for the years ended December 31, 2019 and 2018, respectively, from the sale of ethanol. Our production segment generated $269.0 million and $296.7 million in net sales for the years ended December 31, 2019 and 2018, respectively, from the sale of co-products.

During 2019 and 2018, our production segment sold an aggregate of approximately 491.0 million and 556.2 million gallons of ethanol and 2.8 million and 3.1 million tons of ethanol co-products, respectively.

Our marketing segment generated $355.6 million and $358.9 million in net sales for the years ended December 31, 2019 and 2018, respectively, from the sale of ethanol.

During 2019 and 2018, we produced or purchased ethanol from third parties and resold an aggregate of approximately 704 million and 762 million gallons of fuel-grade ethanol and specialty alcohols to approximately 109 and 80 customers, respectively. Sales to our two largest customers, Valero Energy Corporation and Chevron Products USA in 2019 and 2018 represented an aggregate of approximately 24% and 25%, of our net sales, respectively. Sales to each of our other customers represented less than 10% of our net sales in each of 2019 and 2018.

Suppliers

Production Segment

Our production operations are dependent upon various raw materials suppliers, including suppliers of corn, natural gas, electricity and water. The cost of corn is the most important variable cost associated with our production. We source corn for our plants using standard contracts, including spot purchase, forward purchase and basis contracts. When resources are available, we seek to limit the exposure of our production operations to raw material price fluctuations by purchasing forward a portion of our corn requirements on a fixed price basis and by purchasing corn and other raw materials futures contracts.

During 2019 and 2018, purchases of corn from our four largest suppliers represented an aggregate of approximately 49% and 52% of our total corn purchases, respectively, for those periods. Purchases from each of our other corn suppliers represented less than 10% of total corn purchases in each of 2019 and 2018.

Marketing Segment

Our marketing operations are dependent upon various third-party producers of fuel-grade ethanol. In addition, we provide ethanol transportation, storage and delivery services through third-party service providers with whom we have contracted to receive ethanol at agreed upon locations from our third-party suppliers and to store and/or deliver the ethanol to agreed-upon locations on behalf of our customers. These contracts generally run from year-to-year, subject to termination by either party upon advance written notice before the end of the then current annual term.

During 2019 and 2018, we purchased and resold from third parties an aggregate of approximately 213 million and 206 million gallons, respectively, of fuel-grade ethanol.

During 2019 and 2018, purchases of fuel-grade ethanol from our largest third-party supplier represented an aggregate of approximately 35% of our total third-party ethanol purchases for each of those periods. Purchases from each of our other third-party ethanol suppliers represented less than 10% of total third-party ethanol purchases in each of 2019 and 2018.

Pacific Ethanol Plants

The table below provides an overview of our nine ethanol production facilities. Our plants have an aggregate annual production capacity of up to 605 million gallons. All of our plants, with the exception of our Aurora East facility, are currently operating. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

We wholly-own all of our plants located on the West Coast and the three plants in Pekin, Illinois. We own approximately 74% of the plants in Aurora, Nebraska as well as the grain elevator adjacent to those properties and related grain handling assets, including the outer rail loop, and the real property on which they are located, through Pacific Aurora, an entity owned approximately 26% by ACEC.

	Madera Facility	**Columbia Facility**	**Magic Valley Facility**	**Stockton Facility**
Location	Madera, CA	Boardman, OR	Burley, ID	Stockton, CA
Approximate maximum annual ethanol production capacity (in millions of gallons)	40	40	60	60
Production milling process	Dry	Dry	Dry	Dry
Primary energy source	Natural Gas	Natural Gas	Natural Gas	Natural Gas

	Pekin Wet Facility	**Pekin Dry Facility**	**Pekin ICP Facility**	**Aurora West Facility***	**Aurora East Facility***
Location	Pekin, IL	Pekin, IL	Pekin, IL	Aurora, NE	Aurora, NE
Approximate maximum annual ethanol production capacity (in millions of gallons)	100	60	90	110	45
Production milling process	Wet	Dry	Dry	Dry	Dry
Primary energy source	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas

* Sale Pending.

Commodity Risk Management

We employ various risk mitigation techniques. For example, we may seek to mitigate our exposure to commodity price fluctuations by purchasing forward a portion of our corn and natural gas requirements through fixed-price or variable-price contracts with our suppliers, as well as entering into derivative contracts for ethanol, corn and natural gas. To mitigate ethanol inventory price risks, we may sell a portion of our production forward under fixed- or index-price contracts, or both. We may hedge a portion of the price risks by selling exchange-traded futures contracts. Proper execution of these risk mitigation strategies can reduce the volatility of our gross profit margins. However, the market price of ethanol is volatile and subject to large fluctuations, and given the nature of our business, we cannot effectively hedge against extreme volatility or certain market conditions. For example, ethanol prices, as reported by the Chicago Board of Trade, or CBOT, ranged from $1.25 to $1.70 per gallon during 2019 and from $1.20 to $1.53 per gallon during 2018; and corn prices, as reported by the CBOT, ranged from $3.41 to $4.55 per bushel during 2019 and from $3.30 to $4.09 per bushel during 2018.

Marketing Arrangements

We market all the ethanol and specialty alcohols produced at our production facilities. In addition, we have exclusive ethanol marketing agreements with two third-party ethanol producers, Calgren Renewable Fuels, LLC and Aemetis Advanced Fuels Keyes, Inc., to market and sell their entire ethanol production volumes. Calgren Renewable Fuels, LLC owns and operates an ethanol production facility in Pixley, California with annual production capacity of 55 million gallons. Aemetis Advanced Fuels Keyes, Inc. owns and operates an ethanol production facility in Keyes, California with annual production capacity of 55 million gallons. We intend to evaluate and pursue opportunities to enter into marketing arrangements with other third-party ethanol producers as business prospects make these marketing arrangements advisable.

Competition

We are the sixth largest producer of ethanol in the United States based on annualized volumes and operate in the highly competitive ethanol production and marketing industry. The largest ethanol producers in the United States are Archer-Daniels-Midland Company, POET, LLC, Green Plains Inc. and Valero Renewable Fuels Company, LLC, collectively with approximately 37% of the total installed ethanol production capacity in the United States. In addition, there are many mid-size producers with several plants under ownership, smaller producers with one or two plants, and several ethanol marketers that create significant competition. Overall, we believe there are over 200 ethanol production facilities in the United States with a total installed production capacity of approximately 16.5 billion gallons and many brokers and marketers with whom we compete for sales of ethanol and its co-products.

We believe that our competitive strengths include our customer and supplier relationships, our extensive ethanol distribution network, our strategic locations, our low carbon-intensity ethanol, our use of modern technologies at our production facilities and our experienced management. We believe that these advantages will help us to attain our goal to be a leading producer and marketer of low-carbon renewable fuels, high-value animal feed and high-quality alcohol products in the United States.

Most of the largest metropolitan areas in the United States have fuel terminals served by rail, but other major metropolitan areas and more remote smaller cities and rural areas do not. We believe that we have a competitive advantage in the Western United States in particular due to our experience in marketing to the segment of customers located in major metropolitan and rural markets in the Western United States. We manage the complicated logistics of shipping ethanol to intermediate storage locations throughout the Western United States and trucking the ethanol from these storage locations to blending racks where the ethanol is blended with gasoline. We believe that by establishing an efficient service for truck deliveries to these more remote locations, we have differentiated ourselves from our competitors on the West Coast. In addition, due to our plant locations on the West Coast, we believe that we benefit from our ability to increase spot sales of ethanol from those plants following ethanol price spikes caused from time to time by rail delays in delivering ethanol from the Midwest to the Western United States.

Our strategic locations in the Western United States designed to capitalize on cost efficiencies may nevertheless result in higher than expected costs as a result of more expensive raw materials and related shipping costs, including corn, which generally must be transported from the Midwest. If the costs of producing and shipping ethanol and its co-products over short distances are not advantageous relative to the costs of obtaining raw materials from the Midwest, then the benefits of our strategic locations on the West Coast may not be realized.

Governmental Regulation

Our business is subject to federal, state and local laws and regulations relating to the production of renewable fuels, the protection of the environment and in support of the corn and ethanol industries. These laws, their underlying regulatory requirements and their enforcement, some of which are described below, impact, or may impact, our existing and proposed business operations by imposing:

- restrictions on our existing and proposed business operations and/or the need to install enhanced or additional controls;

- the need to obtain and comply with permits and authorizations;

- liability for exceeding applicable permit limits or legal requirements, in some cases for the remediation of contaminated soil and groundwater at our facilities, contiguous and adjacent properties and other properties owned and/or operated by third parties; and

- specifications for the ethanol we market and produce.

In addition, some governmental regulations are helpful to our ethanol production and marketing business. The ethanol fuel industry is supported by federal and state mandates and environmental regulations that favor the use of ethanol in motor fuel blends in North America. Some of the governmental regulations applicable to our ethanol production and marketing business are briefly described below.

National Energy Legislation

The Energy Independence and Security Act of 2007, which was signed into law in December 2007, significantly increased the prior RFS. The RFS significantly increases the mandated use of renewable fuels, rising incrementally each year, to 36.0 billion gallons by 2022.

Under the provisions of the Energy Independence and Security Act of 2007, the EPA has the authority to waive the mandated RFS requirements in whole or in part. To grant a waiver, the EPA administrator must determine, in consultation with the Secretaries of Agriculture and Energy, that there is inadequate domestic renewable fuel supply or implementation of the requirement would severely harm the economy or environment of a state, region or the United States as a whole.

Policy discussion has begun in the 116th Congress aimed at shifting national power generation to renewable sources and to decarbonize manufacturing and agricultural industries. On January 3, 2019, a bill titled *Leave Ethanol Volumes at Existing Levels (LEVEL) Act (H.R. 104)* was introduced into the House of Representatives aiming to repeal certain amendments to the Clean Air Act relating to the expansion of the renewable fuel program, and for other purposes. This bill revises the renewable fuel program, including the RFS. Under current law, the RFS specifies the minimum volume of renewable fuel, such as ethanol, that must be contained in gasoline sold in the United States, except in noncontiguous states or territories. The RFS annually increases until 2022 when a minimum of 36 billion gallons of renewable fuel must be blended into gasoline. This bill decreases the volume of renewable fuel that must be contained in gasoline to 7.5 billion gallons each year. The bill also revises the RFS to eliminate separate volume requirements for the following renewable fuel categories: advanced biofuels, cellulosic biofuel, and biomass-based diesel. This bill has been referred to a congressional subcommittee where it awaits further consideration. On February 7, 2019, Democrats in both the House and Senate introduced non-binding resolutions, H.Res. 109 and S.Res. 59, *Recognizing the duty of the Federal Government to create a Green New Deal.* The resolutions, referred to as the Green New Deal, outline these goals by providing a blueprint to transition the United States to a 100 percent clean energy system. Expanding from this policy, recently the *Utilizing Significant Emissions with Innovative Technologies (USE IT) Act* was introduced in both chambers. The *USE IT Act* aims to spur the development and demonstration of carbon capture and removal technologies. This legislation has the potential to benefit ethanol producers, as well as a large group of other stakeholders by authorizing grants for these technologies and by streamlining the permitting process for building pipelines that move sequestered carbon. The bills have been referred to their respective congressional subcommittees where they await further consideration. On June 21, 2019, a bill titled *Eliminating the RFS and Its Destructive Outcomes Act (H.R. 3427)* was introduced in the House of Representatives aiming to repeal the EPA's Renewable Fuel Standard program, which requires transportation fuel to contain a minimum volume of renewable fuel. The bill has been referred to a congressional committee, which will consider it before possibly sending the bill to the House of Representatives as a whole.

A bill titled the *Consumer Protection and Fuel Transparency Act of 2019 (H.R 1024),* was introduced on February 6, 2019, which would require the EPA Administrator to revise labeling requirements for fuel pumps that dispense gasoline that contains up to 15% ethanol by volume, or E15. Specifically, the legislation would require labels for fuel pumps that dispense E15 to include the word "WARNING" and "check your owner's manual." In addition, the bill would require the EPA to develop a public education campaign on the supposed risks associated with improper E15 use. EPA gave final approval in 2012 to the use of E15 fuel and the fuel blend is now sold in 30 states. The EPA is already required to label at the pump therefore we believe this bill could confuse consumers and retailers who opt to use E15. This bill was referred to a congressional subcommittee where it awaits further consideration.

E15 (a Blend of Gasoline and Ethanol)

The EPA has allowed fuel and fuel-additive manufacturers to introduce into commercial gasoline that contains greater than 10% ethanol by volume, up to 15% ethanol by volume, for vehicles from model year 2001 and beyond. Additional changes to some states' laws to allow for the use of E15 are still required; however, commercial sale of E15 has begun in a majority of states. In 2019, the EPA enacted a rule that allows for year-round use of E15. We expect year-round demand for E15 will increase in 2020 and future years as E15 adoption accelerates.

State Energy Legislation and Regulations

In January 2007, California's Governor signed an executive order directing the California Air Resources Board to implement California's LCFS for transportation fuels. California's LCFS requires fuel suppliers to reduce the carbon intensity of transportation fuels to 10% below 2010 levels by 2020. The Governor's office estimates that the standard will have the effect of increasing current renewable fuels use in California by three to five times by 2020.

The California Air Resources Board has engaged in a comprehensive process to consider extending California's LCFS through 2030, applying aggressive new carbon intensity reduction targets for the final 10 years. Additional LCFS updates became effective in early January 2019 which require fuel suppliers to reduce the carbon intensity of transportation fuels to 20% below 2010 levels by 2030. We believe the revised program will be beneficial as we produce among the lowest carbon intensity ethanol commercially available, and we receive a premium for the fuel we sell into the California marketplace, which we expect will increase as the compliance curve steepens, which began in 2016.

A program similar to California's LCFS has also been adopted in Oregon and the Canadian province of British Columbia, and is under discussion in Washington State. These regions, together with California, represent a very large segment of the overall demand for transportation fuels in the United States.

Additional Environmental Regulations

In addition to the governmental regulations applicable to the ethanol production and marketing industry described above, our business is subject to additional federal, state and local environmental regulations, including regulations established by the EPA, the San Joaquin Valley Regional Water Quality Control Board, the San Joaquin Valley Air Pollution Control District and the California Air Resources Board. We cannot predict the manner or extent to which these regulations will harm or help our business or the ethanol production and marketing industry in general.

Employees

As of March 27, 2020, we had approximately 500 full-time employees. We believe that our employees are highly-skilled, and our success will depend in part upon our ability to retain our employees and attract new qualified employees, many of whom are in great demand. Approximately 40% of our employees are presently represented by a labor union and covered by a collective bargaining agreement. We have never had a work stoppage or strike and we consider our relations with our employees to be good.

Item 1A. Risk Factors.

Before deciding to purchase, hold or sell our common stock, you should carefully consider the risks described below in addition to the other information contained in this Report and in our other filings with the Securities and Exchange Commission, including subsequent reports on Forms 10-Q and 8-K. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial may also affect our business. If any of these known or unknown risks or uncertainties actually occurs with material adverse effects on Pacific Ethanol, our business, financial condition, results of operations and/or liquidity could be seriously harmed. In that event, the market price for our common stock will likely decline, and you may lose all or part of your investment.

Risks Related to our Business

There is substantial doubt as to our ability to continue as a going concern.

As a result of ethanol industry conditions that have negatively affected our business, we do not expect to have sufficient liquidity to meet our anticipated working capital, debt service and other liquidity needs unless we successfully restructure our debt, sell assets, experience a significant improvement in margins and/or obtain other sources of liquidity. As a result, our 2019 financial statements include an explanatory paragraph by our independent registered public accounting firm describing the substantial doubt as to our ability to continue as a going concern.

Although we are actively pursuing a number of initiatives, including seeking to sell assets, there can be no assurance that we will be successful. If we cannot sell assets and obtain sufficient liquidity in the near term, we may need to seek to protection under the U.S. Bankruptcy Code.

If we are unable to timely implement our strategic initiatives and raise sufficient capital on suitable terms, we will likely have insufficient liquidity to operate our business through the next twelve months, or earlier, resulting in a material adverse effect on our business, prospects, financial condition and results of operations, which could result in a need to seek protection under the U.S. Bankruptcy Code.

We are engaged in strategic initiatives to reduce our debt levels and provide additional liquidity to operate our business. These initiatives will likely require the prompt sale of certain production assets as well as other capital raising activities. Financing, whether through a sale of production assets or other capital raising activities, may not be available on a timely basis, in sufficient amounts, on terms acceptable to us, or at all. In addition, any equity financing may cause significant dilution to existing stockholders and any debt financing or other financing of securities senior to our common stock will likely include financial and other covenants that will restrict our flexibility, including our ability to pay dividends on our common stock.

We have entered into a membership interest purchase agreement to sell our 73.93% ownership interest in Pacific Aurora, LLC to Aurora Cooperative Elevator Company. Pacific Aurora, LLC owns two ethanol production facilities and related assets located in Aurora, Nebraska. We may be unable to successfully close this transaction, which is subject to a financing condition in favor of ACEC and numerous customary and other conditions to closing. In addition, after working capital adjustments, our cash consideration at closing may be less than expected.

If we are unable to timely sell production assets or raise additional capital, or both, in sufficient amounts and on suitable terms, or if we do not experience a sustained margin improvement, we will likely have insufficient liquidity to operate our business. A failure to timely implement our strategic initiatives to reduce our debt levels on suitable terms or our inability to satisfy our payment obligations under our various credit facilities will have a material adverse effect on our business, prospects, financial condition and results of operations and could result in a need to idle production at one or more operating facilities and/or seek protection under the U.S. Bankruptcy Code for all or some portion of our production assets and other subsidiaries, at the parent company level, or both.

The effects of the novel coronavirus may further materially and adversely affect our business, results of operations and liquidity.

Last year's novel strain of coronavirus (COVID-19), has resulted in businesses suspending or substantially curtailing global operations and travel, quarantines, and an overall substantial slowdown of economic activity. Transportation fuels in particular, including ethanol, have experienced significant price declines and reduced demand. A further downturn in global economic growth, or recessionary conditions in major geographic regions, will lead to reduced demand for ethanol and negatively affect the market prices of our products, further materially and adversely affecting our business, results of operations and liquidity.

Our plant indebtedness exposes us to many risks that could negatively impact our business, our business prospects, our liquidity and our cash flows and results of operations.

Our plants located in the Midwest have significant indebtedness. The terms of our plant loans require amortizing payments of principal over the lives of the loans and our borrowing availability under our plant credit facilities periodically and automatically declines through the maturity dates of those facilities. Our plant indebtedness could:

- make it more difficult to pay or refinance our debts as they become due during adverse economic and industry conditions because any decrease in revenues could cause us to not have sufficient cash flows from operations to make our scheduled debt payments;

- limit our flexibility to pursue strategic opportunities or react to changes in our business and the industry in which we operate and, consequently, place us at a competitive disadvantage to our competitors who have less debt;

- require a substantial portion of our cash flows from operations to be used for debt service payments, thereby reducing the availability of our cash flows to fund working capital, capital expenditures, acquisitions, dividend payments and other general corporate purposes; and/or

- limit our ability to procure additional financing for working capital or other purposes.

Our term loans and credit facilities also require compliance with numerous financial and other covenants. In addition, our plant indebtedness bears interest at variable rates. An increase in prevailing interest rates would likewise increase our debt service obligations and could materially and adversely affect our cash flows and results of operations.

Our ability to generate sufficient cash to make all principal and interest payments when due, including an aggregate $40.0 million payment due on September 30, 2020 under our PE Pekin and ICP credit facilities, depends on our business performance, which is subject to a variety of factors beyond our control, including the supply of and demand for ethanol and co-products, ethanol and co-product prices, the cost of key production inputs, and many other factors incident to the ethanol production and marketing industry. We cannot provide any assurance that we will be able to timely satisfy such obligations. Our failure to timely satisfy our debt obligations could have a material adverse effect on our business, business prospects, liquidity, cash flows and results of operations.

We have incurred significant losses and negative operating cash flow in the past and we may incur losses and negative operating cash flow in the future, which may hamper our operations and impede us from expanding our business.

We have incurred significant losses and negative operating cash flow in the past. For the years ended December 31, 2019 and 2018, we incurred consolidated net losses of approximately $101.3 million and $68.0 million, respectively. For the year ended December 31, 2019, we incurred negative operating cash flow of approximately $23.4 million. We may incur losses and negative operating cash flow in the future. We expect to rely on cash on hand, cash, if any, generated from our operations, borrowing availability under our lines of credit and proceeds from future financing activities, if any, to fund all of the cash requirements of our business. Continued losses and negative operating cash flow may hamper our operations and impede us from expanding our business.

Our results of operations and our ability to operate at a profit is largely dependent on managing the costs of corn and natural gas and the prices of ethanol, distillers grains and other ethanol co-products, all of which are subject to significant volatility and uncertainty.

Our results of operations are highly impacted by commodity prices, including the cost of corn and natural gas that we must purchase, and the prices of ethanol, distillers grains and other ethanol co-products that we sell. Prices and supplies are subject to and determined by market and other forces over which we have no control, such as weather, domestic and global demand, supply shortages, export prices and various governmental policies in the United States and around the world.

As a result of price volatility of corn, natural gas, ethanol, distillers grains and other ethanol co-products, our results of operations may fluctuate substantially. In addition, increases in corn or natural gas prices or decreases in ethanol, distillers grains or other ethanol co-product prices may make it unprofitable to operate. In fact, some of our marketing activities will likely be unprofitable in a market of generally declining ethanol prices due to the nature of our business. For example, to satisfy customer demands, we maintain certain quantities of ethanol inventory for subsequent resale. Moreover, we procure much of our inventory outside the context of a marketing arrangement and therefore must buy ethanol at a price established at the time of purchase and sell ethanol at an index price established later at the time of sale that is generally reflective of movements in the market price of ethanol. As a result, our margins for ethanol sold in these transactions generally decline and may turn negative as the market price of ethanol declines.

No assurance can be given that corn or natural gas can be purchased at, or near, current or any particular prices or that ethanol, distillers grains or other ethanol co-products will sell at, or near, current or any particular prices. Consequently, our results of operations and financial position may be adversely affected by increases in the price of corn or natural gas or decreases in the price of ethanol, distillers grains or other ethanol co-products.

Over the past several years, the spread between ethanol and corn prices has fluctuated significantly. Fluctuations are likely to continue to occur. A sustained narrow spread, whether as a result of sustained high or increased corn prices or sustained low or decreased ethanol prices, would adversely affect our results of operations and financial position. Further, combined revenues from sales of ethanol, distillers grains and other ethanol co-products could decline below the marginal cost of production, which may force us to suspend production of ethanol, distillers grains and other ethanol co-products at some or all of our plants.

Increased ethanol production or higher inventory levels may cause a decline in ethanol prices or prevent ethanol prices from rising, and may have other negative effects, adversely impacting our results of operations, cash flows and financial condition.

We believe that the most significant factor influencing the price of ethanol has been the substantial increase in ethanol production. According to the Renewable Fuels Association, domestic ethanol production capacity increased from an annualized rate of 1.5 billion gallons per year in January 1999 to a record 16.1 billion gallons in 2018. In addition, if ethanol production margins improve, we anticipate that owners of ethanol production facilities will increase production levels, thereby resulting in more abundant ethanol supplies and inventories. Any increase in the supply of ethanol may not be commensurate with increases in the demand for ethanol, thus leading to lower ethanol prices. Also, demand for ethanol could be impaired due to a number of factors, including regulatory developments and reduced United States gasoline consumption. Reduced gasoline consumption has occurred in the past and could occur in the future as a result of increased gasoline or oil prices or other factors such as increased automobile fuel efficiency. Any of these outcomes could have a material adverse effect on our results of operations, cash flows and financial condition.

The market price of ethanol is volatile and subject to large fluctuations, which may cause our profitability or losses to fluctuate significantly.

The market price of ethanol is volatile and subject to large fluctuations. The market price of ethanol is dependent upon many factors, including the supply of ethanol and the price of gasoline, which is in turn dependent upon the price of petroleum which is highly volatile and difficult to forecast. For example, ethanol prices, as reported by the CBOT, ranged from $1.25 to $1.70 per gallon in 2019 and from $1.20 to $1.53 per gallon during 2018. Fluctuations in the market price of ethanol may cause our profitability or losses to fluctuate significantly.

Some of our marketing activities will likely be unprofitable in a market of generally declining ethanol prices due to the nature of our business.

Some of our marketing activities will likely be unprofitable in a market of generally declining ethanol prices due to the nature of our business. For example, to satisfy customer demands, we maintain certain quantities of ethanol inventory for subsequent resale. Moreover, we procure much of our inventory outside the context of a marketing arrangement and therefore must buy ethanol at a price established at the time of purchase and sell ethanol at an index price established later at the time of sale that is generally reflective of movements in the market price of ethanol. As a result, our margins for ethanol sold in these transactions generally decline and may turn negative as the market price of ethanol declines.

Disruptions in production or distribution infrastructure may adversely affect our business, results of operations and financial condition.

Our business depends on the continuing availability of rail, road, port, storage and distribution infrastructure. In particular, due to limited storage capacity at our plants and other considerations related to production efficiencies, our plants depend on just-in-time delivery of corn. The production of ethanol and specialty alcohols also requires a significant and uninterrupted supply of other raw materials and energy, primarily water, electricity and natural gas. Local water, electricity and gas utilities may not be able to reliably supply the water, electricity and natural gas that our plants need or may not be able to supply those resources on acceptable terms. In the past, poor weather has caused disruptions in rail transportation, which slowed the delivery of ethanol by rail, the principle manner by which ethanol from our plants located in the Midwest is transported to market. Disruptions in production or distribution infrastructure, whether caused by labor difficulties, earthquakes, storms, other natural disasters or human error or malfeasance or other reasons, could prevent timely deliveries of corn or other raw materials and energy, and could delay transport of our products to market, and may require us to halt production at one or more plants, any of which could have a material adverse effect on our business, results of operations and financial condition.

We may engage in hedging transactions and other risk mitigation strategies that could harm our results of operations and financial condition.

In an attempt to partially offset the effects of volatility of ethanol prices and corn and natural gas costs, we may enter into contracts to fix the price of a portion of our ethanol production or purchase a portion of our corn or natural gas requirements on a forward basis. In addition, we may engage in other hedging transactions involving exchange-traded futures contracts for corn, natural gas and unleaded gasoline from time to time. The financial statement impact of these activities is dependent upon, among other things, the prices involved and our ability to sell sufficient products to use all of the corn and natural gas for which forward commitments have been made. Hedging arrangements also expose us to the risk of financial loss in situations where the other party to the hedging contract defaults on its contract or, in the case of exchange-traded contracts, where there is a change in the expected differential between the underlying price in the hedging agreement and the actual prices paid or received by us. In addition, our open contract positions may require cash deposits to cover margin calls, negatively impacting our liquidity. As a result, our results of operations and financial condition may be adversely affected by our hedging activities and fluctuations in the price of corn, natural gas, ethanol and unleaded gasoline.

Operational difficulties at our plants could negatively impact sales volumes and could cause us to incur substantial losses.

Operations at our plants are subject to labor disruptions, unscheduled downtimes and other operational hazards inherent in the ethanol production industry, including equipment failures, fires, explosions, abnormal pressures, blowouts, pipeline ruptures, transportation accidents and natural disasters. Some of these operational hazards may cause personal injury or loss of life, severe damage to or destruction of property and equipment or environmental damage, and may result in suspension of operations and the imposition of civil or criminal penalties. Our insurance may not be adequate to fully cover the potential operational hazards described above or we may not be able to renew this insurance on commercially reasonable terms or at all.

Moreover, our plants may not operate as planned or expected. All of these facilities are designed to operate at or above a specified production capacity. The operation of these facilities is and will be, however, subject to various uncertainties. As a result, these facilities may not produce ethanol, specialty alcohols and co-products at expected levels. In the event any of these facilities do not run at their expected capacity levels, our business, results of operations and financial condition may be materially and adversely affected.

Future demand for ethanol is uncertain and may be affected by changes to federal mandates, public perception, consumer acceptance and overall consumer demand for transportation fuel, any of which could negatively affect demand for ethanol and our results of operations.

Although many trade groups, academics and governmental agencies have supported ethanol as a fuel additive that promotes a cleaner environment, others have criticized ethanol production as consuming considerably more energy and emitting more greenhouse gases than other biofuels and potentially depleting water resources. Some studies have suggested that corn-based ethanol is less efficient than ethanol produced from other feedstock and that it negatively impacts consumers by causing increased prices for dairy, meat and other food generated from livestock that consume corn. Additionally, ethanol critics contend that corn supplies are redirected from international food markets to domestic fuel markets. If negative views of corn-based ethanol production gain acceptance, support for existing measures promoting use and domestic production of corn-based ethanol could decline, leading to reduction or repeal of federal mandates, which could adversely affect the demand for ethanol. These views could also negatively impact public perception of the ethanol industry and acceptance of ethanol as an alternative fuel.

There are limited markets for ethanol beyond those established by federal mandates. Discretionary blending and E85 blending are important secondary markets. Discretionary blending is often determined by the price of ethanol versus the price of gasoline. In periods when discretionary blending is financially unattractive, the demand for ethanol may be reduced. Also, the demand for ethanol is affected by the overall demand for transportation fuel. Demand for transportation fuel is affected by the number of miles traveled by consumers and the fuel economy of vehicles. Market acceptance of E15 may partially offset the effects of decreases in transportation fuel demand. A reduction in the demand for ethanol and ethanol co-products may depress the value of our products, erode our margins and reduce our ability to generate revenue or to operate profitably. Consumer acceptance of E15 and E85 fuels is needed before ethanol can achieve any significant growth in market share relative to other transportation fuels.

The United States ethanol industry is highly dependent upon certain federal and state legislation and regulation and any changes in legislation or regulation could have a material adverse effect on our results of operations, cash flows and financial condition.

The EPA has implemented the RFS pursuant to the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. The RFS program sets annual quotas for the quantity of renewable fuels (such as ethanol) that must be blended into motor fuels consumed in the United States. The domestic market for ethanol is significantly impacted by federal mandates under the RFS program for volumes of renewable fuels (such as ethanol) required to be blended with gasoline. Future demand for ethanol will be largely dependent upon incentives to blend ethanol into motor fuels, including the price of ethanol relative to the price of gasoline, the relative octane value of ethanol, constraints in the ability of vehicles to use higher ethanol blends, the RFS, and other applicable environmental requirements. Any significant increase in production capacity above the RFS minimum requirements may have an adverse impact on ethanol prices.

Legislation aimed at reducing or limiting the renewable fuel use required by the RFS has been introduced in the United States Congress. On January 3, 2019, a bill (H.R. 104) was introduced into the House of Representatives aiming to repeal certain amendments to the Clean Air Act relating to the expansion of the renewable fuel program, and for other purposes. This bill revises the renewable fuel program, including the RFS. Under current law, the RFS specifies the minimum volume of renewable fuel, such as ethanol, that must be contained in gasoline sold in the United States, except in noncontiguous states or territories. The RFS annually increases until 2022 when a minimum of 36 billion gallons of renewable fuel must be blended into gasoline. This bill decreases the volume of renewable fuel that must be contained in gasoline to 7.5 billion gallons each year. The bill also revises the RFS to eliminate separate volume requirements for the following renewable fuel categories: advanced biofuels, cellulosic biofuel, and biomass-based diesel. The bill was referred to a congressional subcommittee where it awaits further consideration. On May 7, 2019, the Food and Fuel Consumer Protection Act of 2019 (H.R. 2540), was introduced in the House of Representatives. The bill aims to prevent RFS blending obligations from requiring ethanol to make up more than 9.7 percent of the total volume of gasoline projected to be sold or introduced into commerce in the United States for a given calendar year. The bill was referred to a congressional committee, which will consider it before possibly sending the bill to the House of Representatives as a whole. On June 21, 2019, a bill (H.R. 3427) was introduced in the House of Representatives aiming to repeal the EPA's Renewable Fuel Standard program, which requires transportation fuel to contain a minimum volume of renewable fuel. The bill was referred to a congressional committee, which will consider it before possibly sending the bill to the House of Representatives as a whole. On July 25, 2019, a bill (S.2298) was introduced in the United States Senate, to amend the Clean Air Act to eliminate the corn ethanol mandate for renewable fuel. The bill was read twice and referred to the Committee on Environment and Public Works. Our results of operations, cash flows and financial condition could be adversely impacted if any legislation is enacted that reduces or limits the RFS volume requirements.

Under the provisions of the Clean Air Act, as amended by the Energy Independence and Security Act of 2007, the EPA has limited authority to waive or reduce the mandated RFS requirements, which authority is subject to consultation with the Secretaries of Agriculture and Energy, and based on a determination that there is inadequate domestic renewable fuel supply or implementation of the applicable requirements would severely harm the economy or environment of a state, region or the United States. Our results of operations, cash flows and financial condition could be adversely impacted if the EPA reduces the RFS requirements from the statutory levels specified in the RFS.

The ethanol production and marketing industry is extremely competitive. Many of our significant competitors have greater production and financial resources and one or more of these competitors could use their greater resources to gain market share at our expense.

The ethanol production and marketing industry is extremely competitive. Many of our significant competitors in the ethanol production and marketing industry, including Archer-Daniels-Midland Company, POET, LLC, Green Plains, Inc. and Valero Renewable Fuels Company, LLC, have substantially greater production and/or financial resources. As a result, our competitors may be able to compete more aggressively and sustain that competition over a longer period of time. Successful competition will require a continued high level of investment in marketing and customer service and support. Our limited resources relative to many significant competitors may cause us to fail to anticipate or respond adequately to new developments and other competitive pressures. This failure could reduce our competitiveness and cause a decline in market share, sales and profitability. Even if sufficient funds are available, we may not be able to make the modifications and improvements necessary to compete successfully.

We also face competition from international suppliers. Currently, international suppliers produce ethanol primarily from sugar cane and have cost structures that are generally substantially lower than our cost structures. Any increase in domestic or foreign competition could cause us to reduce our prices and take other steps to compete effectively, which could adversely affect our business, financial condition and results of operations.

Our ability to utilize net operating loss carryforwards and certain other tax attributes may be limited.

Federal and state income tax laws impose restrictions on the utilization of net operating loss, or NOL, and tax credit carryforwards in the event that an “ownership change” occurs for tax purposes, as defined by Section 382 of the Internal Revenue Code, or Code. In general, an ownership change occurs when stockholders owning 5% or more of a “loss corporation” (a corporation entitled to use NOL or other loss carryovers) have increased their ownership of stock in such corporation by more than 50 percentage points during any three-year period. The annual base limitation under Section 382 of the Code is calculated by multiplying the loss corporation’s value at the time of the ownership change by the greater of the long-term tax-exempt rate determined by the Internal Revenue Service in the month of the ownership change or the two preceding months.

As of December 31, 2019, of our $228.8 million of federal NOLs, we had $82.1 million of federal NOLs that are limited in their annual use under Section 382 of the Code beyond 2019. Accordingly, our ability to utilize these NOL carryforwards may be substantially limited. These limitations could in turn result in increased future tax obligations, which could have a material adverse effect on our business, financial condition and results of operations.

Our business is not diversified. The high concentration of our sales within the ethanol production and marketing industry could result in a significant reduction in sales and negatively affect our profitability if demand for ethanol declines.

Our business is not diversified. Our sales are highly concentrated within the ethanol production and marketing industry. We expect to be substantially focused on the production and marketing of ethanol and its co-products for the foreseeable future. An industry shift away from ethanol, or the emergence of new competing products, may significantly reduce the demand for ethanol. However, we may be unable to timely alter our business focus away from the production and marketing of ethanol to other renewable fuels or competing products. A downturn in the demand for ethanol would likely materially and adversely affect our sales and profitability.

We may be adversely affected by environmental, health and safety laws, regulations and liabilities

We are subject to various federal, state and local environmental laws and regulations, including those relating to the discharge of materials into the air, water and ground, the generation, storage, handling, use, transportation and disposal of hazardous materials and wastes, and the health and safety of our employees. In addition, some of these laws and regulations require us to operate under permits that are subject to renewal or modification. These laws, regulations and permits can often require expensive pollution control equipment or operational changes to limit actual or potential impacts to the environment. A violation of these laws and regulations or permit conditions can result in substantial fines, natural resource damages, criminal sanctions, permit revocations and/or facility shutdowns. In addition, we have made, and expect to make, significant capital expenditures on an ongoing basis to comply with increasingly stringent environmental laws, regulations and permits.

We may be liable for the investigation and cleanup of environmental contamination at each of our plants and at off-site locations where we arrange for the disposal of hazardous substances or wastes. If these substances or wastes have been or are disposed of or released at sites that undergo investigation and/or remediation by regulatory agencies, we may be responsible under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, or other environmental laws for all or part of the costs of investigation and/or remediation, and for damages to natural resources. We may also be subject to related claims by private parties alleging property damage and personal injury due to exposure to hazardous or other materials at or from those properties. Some of these matters may require us to expend significant amounts for investigation, cleanup or other costs.

In addition, new laws, new interpretations of existing laws, increased governmental enforcement of environmental laws or other developments could require us to make significant additional expenditures. Continued government and public emphasis on environmental issues can be expected to result in increased future investments for environmental controls at our plants. Present and future environmental laws and regulations, and interpretations of those laws and regulations, applicable to our operations, more vigorous enforcement policies and discovery of currently unknown conditions may require substantial expenditures that could have a material adverse effect on our results of operations and financial condition.

The hazards and risks associated with producing and transporting our products (including fires, natural disasters, explosions and abnormal pressures and blowouts) may also result in personal injury claims or damage to property and third parties. As protection against operating hazards, we maintain insurance coverage against some, but not all, potential losses. However, we could sustain losses for uninsurable or uninsured risks, or in amounts in excess of existing insurance coverage. Events that result in significant personal injury or damage to our property or third parties or other losses that are not fully covered by insurance could have a material adverse effect on our results of operations and financial condition.

If we are unable to attract or retain key personnel, our ability to operate effectively may be impaired, which could have a material adverse effect on our business, financial condition and results of operations.

Our ability to operate our business and implement strategies depends, in part, on the efforts of our executive officers and other key personnel. Our future success will depend on, among other factors, our ability to retain our current key personnel and attract and retain qualified future key personnel, particularly executive management. If we are unable to attract or retain key personnel, our ability to operate effectively may be impaired, which could have a material adverse effect on our business, financial condition and results of operations.

We depend on a small number of customers for the majority of our sales. A reduction in business from any of these customers could cause a significant decline in our overall sales and profitability.

The majority of our sales are generated from a small number of customers. During 2019 and 2018, two customers accounted for an aggregate of approximately $336 million and $367 million in net sales, representing 24% and 25% of our net sales, respectively, for those periods. We expect that we will continue to depend for the foreseeable future upon a small number of customers for a significant portion of our sales. Our agreements with these customers generally do not require them to purchase any specified volume or dollar value of ethanol or co-products, or to make any purchases whatsoever. Therefore, in any future period, our sales generated from these customers, individually or in the aggregate, may not equal or exceed historical levels. If sales to any of these customers cease or decline, we may be unable to replace these sales with sales to either existing or new customers in a timely manner, or at all. A cessation or reduction of sales to one or more of these customers could cause a significant decline in our overall sales and profitability.

We incur significant expenses to maintain and upgrade our operating equipment and plants, and any interruption in the operation of our facilities may harm our operating performance.

We regularly incur significant expenses to maintain and upgrade our equipment and facilities. The machines and equipment we use to produce our products are complex, have many parts and some are run on a continuous basis. We must perform routine maintenance on our equipment and will have to periodically replace a variety of parts such as motors, pumps, pipes and electrical parts. In addition, our facilities require periodic shutdowns to perform major maintenance and upgrades. These scheduled facility shutdowns result in decreased sales and increased costs in the periods in which a shutdown occurs and could result in unexpected operational issues in future periods as a result of changes to equipment and operational and mechanical processes made during the shutdown period.

Our lack of long-term ethanol orders and commitments by our customers could lead to a rapid decline in our sales and profitability.

We cannot rely on long-term ethanol orders or commitments by our customers for protection from the negative financial effects of a decline in the demand for ethanol or a decline in the demand for our marketing services. The limited certainty of ethanol orders can make it difficult for us to forecast our sales and allocate our resources in a manner consistent with our actual sales. Moreover, our expense levels are based in part on our expectations of future sales and, if our expectations regarding future sales are inaccurate, we may be unable to reduce costs in a timely manner to adjust for sales shortfalls. Furthermore, because we depend on a small number of customers for a significant portion of our sales, the ramifications of these risks are greater in magnitude than if our sales were less concentrated. As a result of our lack of long-term ethanol orders and commitments, we may experience a rapid decline in our sales and profitability.

There are limitations on our ability to receive distributions from our subsidiaries.

We conduct most of our operations through subsidiaries and are dependent upon dividends or other intercompany transfers of funds from our subsidiaries to generate free cash flow. Moreover, some of our subsidiaries are limited in their ability to pay dividends or make distributions, loans or advances to us by the terms of their financing arrangements. At December 31, 2019, we had approximately $180.9 million of net assets at our subsidiaries that were not available to be distributed in the form of dividends, distributions, loans or advances due to restrictions contained in their financing arrangements.

Our future ability to raise capital may be limited by applicable laws and regulations.

Our capital raising activities have benefited from using a "shelf" registration on Form S-3, which typically enables an issuer to raise additional capital on a more timely and cost effective basis than through other means, such as registration of a securities offering under a Form S-1 registration statement. Our current and future ability to raise additional capital through the sale and issuance of our equity securities may be limited by, among other things, current Securities and Exchange Commission, or the SEC, rules and regulations. Under current SEC rules and regulations, to be eligible to use a Form S-3 registration statement for primary offerings without restriction as to the amount of securities to be sold and issued, the aggregate market value of our common equity held by non-affiliates (i.e., our "public float") must be at least $75.0 million at the time we file the Form S-3 (calculated pursuant to the General Instructions to Form S-3). Furthermore, with respect to our effective Form S-3 registration statement, the SEC's rules and regulations require that we periodically re-evaluate the value of our public float (typically when we file our Annual Report on Form 10-K) to determine whether we continue to satisfy the foregoing public float requirement. As of the date of this report, we do not satisfy the $75.0 million public float requirement. As a result, the amount we can raise through primary offerings of our securities in any 12-month period using a Form S-3 registration statement is limited to an aggregate of one-third of our public float. Moreover, the market value of all securities sold by us under our Form S-3 registration statements during the 12-month period prior to any intended sale will be subtracted from that amount to determine the amount we can then raise under our Form S-3 registration statements. If our public float increases to $75.0 million or more, this limitation would cease to apply until we conduct our next re-evaluation.

Risks Related to Ownership of our Common Stock

We have received a delisting notice from The NASDAQ Stock Market. Our common stock may be involuntarily delisted from trading on The NASDAQ Capital Market if we fail to regain compliance with the minimum closing bid price requirement of $1.00 per share. A delisting of our common stock is likely to reduce the liquidity of our common stock and may inhibit or preclude our ability to raise additional financing and may also materially and adversely impact our credit terms with our vendors.

The quantitative listing standards of The NASDAQ Stock Market, or NASDAQ, require, among other things, that listed companies maintain a minimum closing bid price of $1.00 per share. We failed to satisfy this threshold for 30 consecutive trading days and on July 17, 2019, we received a letter from NASDAQ indicating that we had an initial period of 180 calendar days, or until January 13, 2020, in which to regain compliance. On January 15, 2020, we received a letter from NASDAQ granting us a 180-day extension period, or until July 13, 2020, in which to regain compliance by meeting the minimum closing bid price of $1.00 per share for ten consecutive business days. If we do not regain compliance by July 13, 2020, the NASDAQ staff will provide written notice that our common stock is subject to delisting. Given the increased market volatility and the effects of the Coronavirus, including an acute negative margin environment in the biofuels industry, and our lack of liquidity, we may be unable to regain compliance with the closing bid price requirement by July 13, 2020. A delisting of our common stock is likely to reduce the liquidity of our common stock and may inhibit or preclude our ability to raise additional financing and may also materially and adversely impact our credit terms with our vendors.

The conversion of convertible securities and the exercise of outstanding options and warrants to purchase our common stock could substantially dilute your investment, impede our ability to obtain additional financing and cause us to incur additional expenses.

Our Series B Preferred Stock, which are convertible into our common stock, and outstanding options to acquire our common stock issued to employees, directors and others, and the Warrants to purchase our common stock, allow the holders of these securities an opportunity to profit from a rise in the market price of our common stock such that conversion or exercise of the securities will result in dilution of the equity interests of our common stockholders. The terms on which we may obtain additional financing may be adversely affected by the existence and potentially dilutive impact of our Series B Preferred Stock, options and Warrants. In addition, holders of our Series B Preferred Stock and Warrants have registration rights with respect to the common stock underlying those Series B Preferred Stock and Warrants, the registration of which involves substantial expense.

The market price of our common stock and the value of your investment could substantially decline if shares of our Series B Preferred Stock are converted into shares of our common stock and if our options and Warrants are exercised for shares of our common stock and all of these shares of common stock are resold into the market, or if a perception exists that a substantial number of shares of common stock will be issued upon conversion of our Series B Preferred Stock or upon exercise of our Warrants or options and then resold into the market.

Sales of a substantial number of shares of common stock issued upon conversion of our Series B Preferred Stock and upon exercise of our Warrants and options, or even the perception that these sales could occur, could adversely affect the market price of our common stock. As a result, you could experience a substantial decline in the value of your investment as a result of both the actual and potential conversion of our outstanding shares of Series B Preferred Stock and exercise of our outstanding Warrants or options.

Our stock price is highly volatile, which could result in substantial losses for investors purchasing shares of our common stock and in litigation against us.

The market price of our common stock has fluctuated significantly in the past and may continue to fluctuate significantly in the future. The market price of our common stock may continue to fluctuate in response to one or more of the following factors, many of which are beyond our control:

- our ability to continue as a going concern;
- fluctuations in the market prices of ethanol and its co-products;
- the cost of key inputs to the production of ethanol, including corn and natural gas;
- the volume and timing of the receipt of orders for ethanol from major customers;
- competitive pricing pressures;
- our ability to timely and cost-effectively produce, sell and deliver ethanol;
- the announcement, introduction and market acceptance of one or more alternatives to ethanol;
- changes in market valuations of companies similar to us;
- stock market price and volume fluctuations generally;
- regulatory developments or increased enforcement;
- fluctuations in our quarterly or annual operating results;
- additions or departures of key personnel;
- the timing and results of our strategic initiatives;
- our inability to obtain financing;
- our financing activities and future sales of our common stock or other securities, as well as stockholder dilution; and
- our ability to maintain contracts that are critical to our operations.

Demand for ethanol could also be adversely affected by a slow-down in overall demand for oxygenate and gasoline additive products. The levels of our ethanol production and purchases for resale will be based upon forecasted demand. Accordingly, any inaccuracy in forecasting anticipated revenues and expenses could adversely affect our business. The failure to receive anticipated orders or to complete delivery in any quarterly period could adversely affect our results of operations for that period. Quarterly and annual results are not necessarily indicative of future performance for any particular period, and we may not experience revenue growth or profitability on a quarterly or an annual basis.

The price at which you purchase shares of our common stock may not be indicative of the price that will prevail in the trading market. You may be unable to sell your shares of common stock at or above your purchase price, which may result in substantial losses to you and which may include the complete loss of your investment. In the past, securities class action litigation has often been brought against a company following periods of high stock price volatility. We may be the target of similar litigation in the future. Securities litigation could result in substantial costs and divert management’s attention and our resources away from our business.

Any of the risks described above could have a material adverse effect on our results of operations, the price of our common stock, or both.

Item 1B. Unresolved Staff Comments.

We have received no written comments regarding our periodic or current reports from the staff of the Securities and Exchange Commission that were issued 180 days or more preceding the end of our 2019 fiscal year and that remain unresolved.

Item 2. Properties.

Our corporate headquarters, located in Sacramento, California, consists of a 10,000 square foot office under a lease expiring in 2029. We have plants located in Madera, California, at a 137 acre facility; Boardman, Oregon, at a 25 acre facility; Burley, Idaho, at a 160 acre facility; and Stockton, California, at a 30 acre facility. We own the land in Madera, California and Burley, Idaho. The land in Boardman, Oregon and Stockton, California are leased under leases expiring in 2026 and 2022, respectively. We also have plants located in Pekin, Illinois at facilities totaling 145 acres and Aurora, Nebraska, at a 96 acre facility. We own the land in Pekin, Illinois and Aurora, Nebraska, as well as the grain handling facility, loop track and the real property on which they are located in Aurora, Nebraska. We also own an idled ethanol production facility in Canton, Illinois on a 289 acre facility, of which a significant portion is farm land. Our production segment includes our ethanol production facilities. See "Business—Pacific Ethanol Plants."

Item 3. Legal Proceedings.

We are subject to legal proceedings, claims and litigation arising in the ordinary course of business. While the amounts claimed may be substantial, the ultimate liability cannot presently be determined because of considerable uncertainties that exist. Therefore, it is possible that the outcome of those legal proceedings, claims and litigation could adversely affect our quarterly or annual operating results or cash flows when resolved in a future period. However, based on facts currently available, management believes such matters will not adversely affect in any material respect 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.

Market Information

Our common stock trades on The NASDAQ Capital Market under the symbol "PEIX". We also have non-voting common stock outstanding which is not listed on an exchange. The table below shows, for each fiscal quarter indicated, the high and low sales prices of shares of our common stock. The prices shown reflect inter-dealer prices, without retail mark-up, mark-down or commission, and may not necessarily represent actual transactions.

	Price Range	
	High	**Low**
Year Ended December 31, 2019:		
First Quarter (January 1 – March 31)	$ 1.67	$ 0.85
Second Quarter (April 1 – June 30)	$ 1.31	$ 0.75
Third Quarter (July 1 – September 30)	$ 1.00	$ 0.50
Fourth Quarter (October 1 – December 31)	$ 0.93	$ 0.39
Year Ended December 31, 2018:		
First Quarter	$ 4.75	$ 2.75
Second Quarter	$ 3.95	$ 2.40
Third Quarter	$ 3.00	$ 1.55
Fourth Quarter	$ 3.24	$ 0.76

Security Holders

As of March 27, 2020, we had 55,893,014 shares of common stock outstanding held of record by approximately 340 stockholders and 896 shares of non-voting common stock outstanding held of record by one stockholder. These holders of record include depositories that hold shares of stock for brokerage firms which, in turn, hold shares of stock for numerous beneficial owners. On March 27, 2020, the closing sales price of our common stock on The NASDAQ Capital Market was $0.2879 per share.

Dividend Policy

We have never paid cash dividends on our common stock and do not intend to pay cash dividends on our common stock in the foreseeable future. We anticipate that we will retain any earnings for use in the continued development of our business.

Our current and future debt financing arrangements may limit or prevent cash distributions from our subsidiaries to us, depending upon the achievement of specified financial and other operating conditions and our ability to properly service our debt, thereby limiting or preventing us from paying cash dividends. Further, the holders of our outstanding Series B Preferred Stock are entitled to dividends of 7% per annum, payable quarterly in arrears. In 2018, we declared and paid in cash dividends on our outstanding shares of Series B Preferred Stock as they became due. For the first nine months of 2019, we declared and paid in cash dividends on our outstanding shares of Series B Preferred Stock as they became due; however, for the fourth quarter, we accrued but did not declare or pay cash dividends under an agreement with the holders of our Series B Preferred Stock in an effort to preserve liquidity. Accrued and unpaid dividends in respect of our Series B Preferred Stock must be paid prior to the payment of any dividends in respect of shares of our common stock.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

None.

Item 6. Selected Financial Data.

Not Applicable.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report. This discussion contains forward-looking statements, reflecting our plans and objectives that involve risks and uncertainties. Actual results and the timing of events may differ materially from those contained in these forward-looking statements due to a number of factors, including those discussed in the section entitled "Risk Factors" and elsewhere in this report.

Recent Developments

We, and the ethanol industry as a whole, experienced significant adverse conditions throughout most of 2018 and 2019, and thus far into 2020, as a result of industry-wide record low ethanol prices due to reduced demand and high industry inventory levels. These factors, which are compounded by the impact of the novel coronavirus in 2020, resulted and continue to result in negative operating margins, significantly lower cash flow from operations and substantial net losses. In response to the low margin environment, we have reduced production and have pursued strategic initiatives focused on the sale of certain production assets, a reduction of our debt levels, a strengthening of our cash and liquidity position, and opportunities for strategic partnerships and capital raising activities, positioning us to optimize our business performance. Our most significant challenges in meeting these objectives would be a sustained adverse margin environment and insufficient cash flow to fund operations or make our debt payments.

We do not expect to have sufficient liquidity to meet our anticipated working capital, debt service and other liquidity needs unless we successfully restructure our debt, sell assets, experience a significant improvement in margins and/or obtain other sources of liquidity. We have reduced production at our facilities by more than 60% due to market conditions and in an effort to conserve capital. If margins do not promptly and sustainably improve from current levels, we may be forced to further curtail or cease production at one or more of our operating facilities. See "Risk Factors" and "—Liquidity and Capital Resources".

On February 28, 2020, we entered into a membership interest purchase agreement with Aurora Cooperative Elevator Company, or ACEC, to sell our full 73.93% ownership interest in Pacific Aurora, LLC, or Pacific Aurora, to ACEC for total consideration of $52.8 million, subject to certain working capital adjustments, payable in cash and $16.5 million in ACEC promissory notes. ACEC currently owns 26.07% of Pacific Aurora.

Overview

We are a leading producer and marketer of low-carbon renewable fuels in the United States.

We operate nine strategically-located production facilities. Four of our plants are in the Western states of California, Oregon and Idaho, and five of our plants are located in the Midwestern states of Illinois and Nebraska. We are the sixth largest producer of ethanol in the United States based on annualized volumes. Our plants have a combined production capacity of 605 million gallons per year. We market all the ethanol, specialty alcohols and co-products produced at our plants as well as ethanol produced by third parties. On an annualized basis, we market nearly 1.0 billion gallons of ethanol and over 3.0 million tons of co-products on a dry matter basis. Our business consists of two operating segments: a production segment and a marketing segment.

Our mission is to be a leading producer and marketer of low-carbon renewable fuels, high-value animal feed and high-quality alcohol products in the United States. We intend to accomplish this goal in part by investing in our ethanol production and distribution infrastructure, lowering the carbon intensity of our ethanol, extending our marketing business into new regional and international markets, and implementing new technologies to promote higher production yields and greater efficiencies.

Production Segment

We produce ethanol, specialty alcohols and co-products at our production facilities described below. Our plants located on the West Coast are near their respective fuel and feed customers, offering significant timing, transportation cost and logistical advantages. Our plants located in the Midwest are in the heart of the Corn Belt, benefit from low-cost and abundant feedstock production and allow for access to many additional domestic markets. In addition, our ability to load unit trains from our plants located in the Midwest, and barges from our Pekin, Illinois plants, allows for greater access to international markets.

We wholly-own all of our plants located on the West Coast and the three plants in Pekin, Illinois. Pacific Aurora owns the two plants in Aurora, Nebraska as well as the grain elevator adjacent to those properties and related grain handling assets, including the outer rail loop, and the real property on which they are located.

All of our plants, except our Stockton and Aurora East facilities, are currently operating. As market conditions change, we may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Facility Name	Facility Location	Estimated Annual Capacity (gallons)
Magic Valley	Burley, ID	60,000,000
Columbia	Boardman, OR	40,000,000
Stockton	Stockton, CA	60,000,000
Madera	Madera, CA	40,000,000
Aurora West*	Aurora, NE*	110,000,000*
Aurora East*	Aurora, NE*	45,000,000*
Pekin Wet	Pekin, IL	100,000,000
Pekin Dry	Pekin, IL	60,000,000
Pekin ICP	Pekin, IL	90,000,000

* Sale Pending.

We produce ethanol co-products at our production facilities such as wet distillers grains, or WDG, dried distillers grains with solubles, or DDGS, wet and dry corn gluten feed, condensed distillers solubles, corn gluten meal, corn germ, corn oil, dried yeast and CO_2.

Marketing Segment

We market ethanol, specialty alcohols and co-products produced by our facilities and market ethanol produced by third parties. We have extensive customer relationships throughout the Western and Midwestern United States. Our ethanol customers are integrated oil companies and gasoline marketers who blend ethanol into gasoline. Our customers depend on us to provide a reliable supply of ethanol, and manage the logistics and timing of delivery with very little effort on their part. Our customers collectively require ethanol volumes in excess of the supplies we produce at our production facilities. We secure additional ethanol supplies from third-party plants in California and other third-party suppliers in the Midwest where a majority of ethanol producers are located. We arrange for transportation, storage and delivery of ethanol purchased by our customers through our agreements with third-party service providers in the Western United States as well as in the Midwest from a variety of sources.

We market our distillers grains and other feed co-products to dairies and feedlots, in many cases located near our ethanol plants. These customers use our feed co-products for livestock as a substitute for corn and other sources of starch and protein. We sell our corn oil to poultry and biodiesel customers. We do not market co-products from other ethanol producers.

See “Note 4 – Segments” to our Notes to Consolidated Financial Statements included elsewhere in this report for financial information about our business segments.

Current Initiatives and Outlook

Margins improved during the first half of the fourth quarter of 2019, rising to levels better than at any time in the prior two years. In response, the ethanol industry increased production, driving down margins for the second half of the fourth quarter. In the first quarter of 2020, we experienced an acute negative margin environment resulting from continued excess ethanol supplies compounded by plummeting demand from the impact of the novel coronavirus pandemic. Numerous statewide stay-at-home orders have significantly reduced transportation fuel demand. We expect up to a 50% reduction or more in demand while the stay-at-home orders remain in place throughout the markets we serve. Declining demand has impacted the market price of ethanol, pushing prices to historically low levels. While corn prices have also declined, they have moved less on a percentage basis, and have not alleviated lower ethanol prices, resulting in industry-wide negative production margins. As a result, ethanol producers are curtailing production and idling plants to reduce supply and avoid negative cash flow operations. We believe that as much as 3.0 billion gallons of ethanol production is now off-line. We have reduced production levels and overall plant utilization by more than 60%, while seeking to balance our customer commitments with our need to minimize negative operating cash flow.

Our ICP production facility in Pekin, Illinois is producing and selling record amounts of high-quality alcohol, a key ingredient in the production of hand sanitizers. At our ICP plant, we produce primarily high-quality alcohol for sale into industrial-, chemical- and beverage-grade markets. Historically, ICP has generated approximately 10% of its sales by selling high-quality alcohol for the production of hand sanitizers. ICP has improved its production processes and has more than doubled its sales of high-quality alcohol for the production of hand sanitizers to meet increased demand. We are also working with local health organizations and first-responders in Pekin, Illinois to produce and donate hand sanitizer in the local community to front-line health workers tending to those impacted by the coronavirus.

We have engaged a Chief Restructuring Officer on a consulting basis to assist us in negotiating with our lenders and implementing our strategic initiatives. As noted above, in February, we entered into a membership interest purchase agreement with ACEC to sell our ownership interest in Pacific Aurora to ACEC for total consideration of $52.8 million, subject to certain working capital adjustments, payable in cash and $16.5 million in ACEC promissory notes. We expect this transaction to close in the second quarter. We are also in discussions with multiple other parties regarding the sale of various other assets or strategic partnerships.

The Environmental Protection Agency's, or EPA's, final rule for Renewable Fuel Standard, or RFS, blending requirements for 2020 maintained the minimum 15.0 billion gallon target set by Congress for conventional biofuels, which is primarily met by corn ethanol.

The EPA has elected not to appeal a 10th Circuit federal court decision limiting small refinery exemptions from the RFS. Although some refiners have appealed the decision, we believe the EPA will not join in or support the appeal, reducing the likelihood of its success. While the court decision is geographically limited, we expect the EPA to apply the decision nationally and substantially limit small refinery exemptions going forward. If applied nationally, we expect that fewer small refinery exemptions would restore over 1.0 billion gallons of annual demand for renewable fuels once the industry recovers from the crisis caused by the coronavirus pandemic.

Approximately thirty countries have renewable fuel standards or targets. United States ethanol exports were seasonally strong in the fourth quarter. For all of 2019, exports declined slightly compared to 2018. We expect United States ethanol exports in 2020 at approximately the same level as 2019 provided that the effects of the coronavirus are not long-lasting. Since China appears to be the first country to emerge from the most significant effects of the coronavirus, we are optimistic that China may step in as a significant buyer of United States ethanol as part of China's phase one trade deal with the United States.

We are pursuing a number of strategic initiatives focused on the sale of certain production assets, a reduction of our debt levels, a strengthening of our cash and liquidity position, and opportunities for strategic partnerships and capital raising activities, positioning us to optimize our business performance. Our most significant challenge in meeting these objectives would be a sustained adverse margin environment. See "—Liquidity and Capital Resources".

We remain focused on implementing initiatives and investing in our assets to reduce costs, both at the operating and corporate levels; further diversifying our sales through additional high-protein animal feed and high-quality alcohol products; improving our production yields and other operating efficiencies; and reducing the carbon intensity of the ethanol we produce.

2019 Financial Performance Summary

Summary

Our consolidated net sales declined to $1.4 billion for 2019 compared to $1.5 billion for 2018. Our net loss available to common stockholders increased by $28.7 million from $61.5 million for 2018 to $90.2 million for 2019.

Factors that contributed to our results of operations for 2019 include:

- *Net sales.* Our net sales for 2019 declined 7% to $1.4 billion for 2019 from $1.5 billion for 2018 as a result of a decrease in total gallons sold, partially offset by an increase in our average sales price per gallon. Our total gallons sold declined 7% to 819 million gallons for 2019 from 883 million gallons for 2018. Our production sales volume decreased 12% to 491 million gallons for 2019 from 556 million gallons for 2018, which was partially offset by a less than 1% increase in our third party sales volume to 328 million gallons for 2019 from 327 million gallons for 2018. We intentionally reduced production volume, and thus production sales volume, including idling our Aurora East facility, due to an unfavorable production margin environment.

- *Asset impairment.* We entered into an agreement to sell our 74% ownership interest in Pacific Aurora, LLC, and as such, recorded its long-lived assets as held-for-sale. As a result, we recognized an impairment charge to fair value of $29.3 million.

- *Loss on debt extinguishment*. In December 2019, we amended our senior secured notes, extending their term for two years. As part of that amendment, we recognized $6.5 million in loss on debt extinguishment, primarily related to recording certain direct fees paid to our lenders and recording the amended notes at fair value.

- *Interest expense.* Our interest expense increased by $3.1 million to $20.2 million for 2019 from $17.1 million for 2018. This increase is primarily due to higher interest rates on our senior secured notes, which increased in accordance with the terms of the notes.

Sales and Margins

We generate sales by marketing all the ethanol produced by our ethanol plants, all the ethanol produced by two other ethanol producers in the Western United States and ethanol purchased from other third-party suppliers throughout the United States. We also market high-quality alcohol products and ethanol co-products, including WDG and DDGS, wet and dry corn gluten feed, condensed distillers solubles, corn gluten meal, corn germ, corn oil, dried yeast and CO_2, for our ethanol plants.

Our profitability is highly dependent on various commodity prices, including the market prices of ethanol, corn and natural gas.

Our average ethanol sales price increased by 2.5% to $1.61 per gallon for 2019 compared to $1.57 per gallon for 2018. The average price of ethanol as reported by the Chicago Board of Options Trade, or CBOT, increased 1.5% to $1.39 per gallon for 2019 compared to $1.37 per gallon for 2018. Our average cost of corn increased 9% to $4.26 per bushel for 2019 from $3.91 per bushel for 2018. The average price of corn as reported by the CBOT increased 4.1% to $3.83 per bushel for 2019 from $3.68 per bushel for 2018.

We believe that our gross profit margins depend primarily on five key factors:

- the market price of ethanol, which we believe is impacted by the degree of competition in the ethanol market; the price of gasoline and related petroleum products; and government regulation, including government mandates;
- the market price of key production input commodities, including corn and natural gas;
- the market price of co-products;
- our ability to anticipate trends in the market price of ethanol, co-products, and key input commodities and implement appropriate risk management and opportunistic strategies; and
- the proportion of our sales of ethanol produced at our ethanol plants to our sales of ethanol produced by unrelated third-parties.

We seek to optimize our gross profit margins by anticipating the factors above and, when resources are available, implementing hedging transactions and taking other actions designed to limit risk and address these factors. For example, we may seek to decrease inventory levels in anticipation of declining ethanol prices and increase inventory levels in anticipation of rising ethanol prices. We may also seek to alter our proportion or timing, or both, of purchase and sales commitments. Furthermore, we may diversify our ethanol feedstock to lower our average costs and/or increase our ethanol sales prices from premiums for low-carbon intensity rated ethanol.

Our limited resources to act upon the anticipated factors described above and/or our inability to anticipate these factors or their relative importance, and adverse movements in the factors themselves, could result in declining or even negative gross profit margins over certain periods of time. Our ability to anticipate these factors or favorable movements in these factors may enable us to generate above-average gross profit margins. However, given the difficulty associated with successfully forecasting any of these factors, we are unable to estimate our future gross profit margins.

Results of Operations

Selected Financial Information

The following selected financial information should be read in conjunction with our consolidated financial statements and notes to our consolidated financial statements included elsewhere in this report, and the other sections of "Management's Discussion and Analysis of Financial Condition and Results of Operations" contained in this report.

Certain performance metrics that we believe are important indicators of our results of operations include:

	Years Ended December 31, 2019	Years Ended December 31, 2018	Percentage Change 2019 vs 2018
Production gallons sold (in millions)	491.0	556.2	(11.7)%
Third-party gallons sold (in millions)	328.4	326.8	0.5%
Total gallons sold (in millions)	819.4	883.0	(7.2)%
Total gallons produced (in millions)	494.6	554.3	(10.8)%
Production capacity utilization	82%	92%	(10.9)%
Average sales price per gallon	$ 1.61	$ 1.57	2.5%
Corn cost per bushel—CBOT equivalent	$ 3.83	$ 3.66	4.6%
Average basis[1]	$ 0.43	$ 0.25	72.0%
Delivered cost of corn	$ 4.26	$ 3.91	9.0%
Total co-product tons sold (in thousands)	2,821.7	3,096.2	(8.9)%
Co-product revenues as % of delivered cost of corn[2]	35.1%	36.5%	(3.8)%
Average CBOT ethanol price per gallon	$ 1.39	$ 1.37	1.5%
Average CBOT corn price per bushel	$ 3.83	$ 3.68	4.1%

(1) Corn basis represents the difference between the immediate cash price of delivered corn and the future price of corn for Chicago delivery.

(2) Co-product revenues as a percentage of delivered cost of corn shows our yield based on sales of co-products, including WDG and corn oil, generated from ethanol we produced.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018

	Years Ended December 31, 2019	Years Ended December 31, 2018	Dollar Change Favorable (Unfavorable)	Percentage Change Favorable (Unfavorable)	Results as a Percentage of Net Sales for the Years Ended December 31, 2019	Results as a Percentage of Net Sales for the Years Ended December 31, 2018
	(dollars in thousands)					
Net sales	$ 1,424,881	$ 1,515,371	$ (90,490)	(6.0)%	100.0%	100.0%
Cost of goods sold	1,434,819	1,530,535	95,716	6.3%	100.7%	101.0%
Gross loss	(9,938)	(15,164)	5,226	34.5%	(0.7)%	(1.0)%
Selling, general and administrative expenses	35,453	36,373	920	2.5%	2.5%	2.4%
Asset impairment	29,292	—	(29,292)	NM	2.0%	—
Loss from operations	(74,683)	(51,537)	(23,146)	(44.9)%	(5.2)%	(3.4)%
Loss on debt extinguishment	(6,517)	—	(6,517)	NM	(0.5)%	—
Interest expense, net	(20,206)	(17,132)	(3,074)	(17.9)%	(1.4)%	(1.1)%
Other income, net	104	171	(67)	(39.2)%	0.0%	0.0%
Loss before provision (benefit) for income taxes	(101,302)	(68,498)	(32,804)	(47.9)%	(7.1)%	(4.5)%
Benefit for income taxes	20	562	(542)	(96.4)%	0.0%	0.0%
Consolidated net loss	(101,282)	(67,936)	(33,346)	(49.1)%	(7.1)%	(4.5)%
Net loss attributed to noncontrolling interests	12,333	7,663	4,670	60.9%	0.9%	0.5%
Net loss attributed to Pacific Ethanol, Inc.	$ (88,949)	$ (60,273)	$ (28,676)	(47.6)%	(6.2)%	(4.0)%
Preferred stock dividends	(1,265)	(1,265)	—	—%	(0.1)%	(0.1)%
Loss available to common stockholders	$ (90,214)	$ (61,538)	$ (28,676)	(46.6)%	(6.3)%	(4.1)%

Net Sales

The decrease in our consolidated net sales for 2019 as compared to 2018 was primarily due to a decrease in our total gallons sold, partially offset by an increase in our average sales price per gallon.

Our production gallons sold and our volume of co-products sold declined for 2019 as compared to 2018, while our third-party gallons sold increased slightly. Our production gallons and co-products sold declined primarily due to an intentional reduction in production levels at our facilities, including the idling of our Aurora East facility, as a result of an unfavorable production margin environment.

Production Segment

Net sales of ethanol from our production segment decreased by $59.5 million, or 7%, to $800.3 million for 2019 as compared to $859.8 million for 2018. Our total volume of production gallons sold decreased by 65.2 million gallons, or 12%, to 491.0 million gallons for 2019 as compared to 556.2 million gallons for 2018. At our production segment's average sales price per gallon of $1.63 for 2019, we generated $106.5 million in fewer net sales from our production segment from the 65.2 million reduction in gallons of produced ethanol sold in 2019 as compared to 2018. The increase of $0.08, or 6%, in our production segment's average sales price per gallon in 2019 as compared to 2018 improved our net sales from our production segment by $47.0 million.

Net sales of co-products decreased $27.7 million, or 9%, to $269.0 million for 2019 as compared to $296.7 million for 2018. Our total volume of co-products sold decreased by 0.3 million tons, or 10%, to 2.8 million tons for 2019 from 3.1 million tons for 2018. At our average sales price per ton of $95.33 for 2019, we generated $26.2 million less in net sales from the 0.3 million fewer tons of co-products sold in 2019 as compared to 2018. The decrease of $0.49, or 0.5%, in our average sales price per ton in 2019 as compared to 2018 decreased our net sales from our production segment by $1.5 million.

Marketing Segment

Net sales of ethanol from our marketing segment, excluding intersegment sales, decreased by $3.3 million, or 1%, to $355.6 million for 2019 as compared to $358.9 million for 2018.

Our volume of third party ethanol gallons sold reported gross by our marketing segment increased by 6.7 million gallons, or 3%, to 212.8 million gallons for 2019 as compared to 206.1 million gallons for 2018. At our marketing segment's average sales price per gallon of $1.66 for 2019, we generated $11.1 million in increased net sales from our marketing segment from the 6.7 million gallon increase in third-party ethanol sold gross in 2019 as compared to 2018.

Our volume of third party ethanol gallons sold reported net by our marketing segment decreased by 5.1 million gallons, or 4%, to 115.6 million gallons for 2019 as compared to 120.7 million gallons for 2018. The decrease in third party ethanol gallons sold reported had less than $0.1 million impact in net sales.

The decrease of $0.07 per gallon, or 4%, in our marketing segment's average sales price per gallon in 2019 as compared to 2018 decreased our net sales from third-party ethanol sold by our marketing segment by $14.4 million.

Cost of Goods Sold and Gross Loss

Our consolidated gross loss improved to a gross loss of $9.9 million for 2019 from $15.2 million for 2018, representing a gross profit margin of negative 0.7% for 2019 compared to negative 1.0% for 2018. Our consolidated gross loss improved primarily due to significantly lower production volumes during the year, resulting in lower net sales at negative production margins. In addition, for the year ended December 31, 2018, cost of goods sold included approximately $4.8 million of larger than anticipated repair and maintenance related expenses to replace faulty equipment.

Production Segment

Our production segment's gross loss improved by $14.1 million to a gross loss of $24.9 million for 2019 as compared to $39.0 million for 2018. This improvement is attributable to lower production volumes and a slightly improved, although still negative, production margin environment.

Marketing Segment

Our marketing segment's gross profit declined by $8.9 million to $14.9 million for 2019 as compared to $23.8 million for 2018. Of this decline, $9.3 million is attributable to decreased third party sales margins, slightly offset by $0.4 million attributable to decreased third party marketing volumes in 2019 as compared to 2018.

Selling, General and Administrative Expenses

Our SG&A expenses decreased $0.9 million to $35.5 million for 2019 as compared to $36.4 million for the same period in 2018. SG&A as a percentage of revenue remained largely flat on a year over year basis.

Asset Impairment

In connection with the pending sale of our ownership interest in Pacific Aurora, we recorded the related long-lived assets to fair value, less estimated selling costs, and classified them as held-for-sale on the accompanying consolidated balance sheets. As a result, we recorded an impairment charge of $29.3 million for 2019.

Interest Expense, net

Interest expense increased $3.1 million to $20.2 million for 2019 from $17.1 million for 2018. The increase in interest expense is primarily due to higher interest rates on our senior notes, which increased in accordance with the terms of the notes.

Net Loss Attributed to Noncontrolling Interests

Net loss attributed to noncontrolling interests relates to our consolidated treatment of Pacific Aurora. Beginning in 2016, we consolidated the assets associated with Pacific Aurora before and after the admission of a 26% equity owner of Pacific Aurora. As a result, we reduced our consolidated net loss for the noncontrolling interests, which were the ownership interests that we did not own.

Liquidity and Capital Resources

During 2019, we funded our operations primarily from cash on hand and advances under our revolving credit facilities. These funds were also used to make capital expenditures, capital lease payments and principal and interest payments on term debt.

Our financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. We, and the ethanol industry as a whole, experienced significant adverse conditions throughout most of 2018 and 2019, and thus far into 2020, as a result of industry-wide record low ethanol prices due to reduced demand and high industry inventory levels. These factors, which are compounded by the impact of the novel coronavirus in 2020, resulted and continue to result in negative operating margins, significantly lower cash flow from operations and substantial net losses. In response to the low-margin environment, we have reduced production and have pursued strategic initiatives focused on the sale of certain production assets, a reduction of our debt levels, a strengthening of our cash and liquidity position, and opportunities for strategic partnerships and capital raising activities, positioning us to optimize our business performance. Our most significant challenges in meeting these objectives would be a sustained adverse margin environment and insufficient cash flow to fund operations or make our scheduled debt payments.

We do not expect to have sufficient liquidity to meet our anticipated working capital, debt service and other liquidity needs unless we successfully restructure our debt, sell assets, experience a significant improvement in margins and/or obtain other sources of liquidity. We have reduced production at our facilities by more than 60% due to market conditions and in an effort to conserve capital. If margins do not promptly and sustainably improve from current levels, we may be forced to further curtail or cease production at one or more of our operating facilities. See “Risk Factors”.

Our current available capital resources consist of cash on hand and amounts available for borrowing under our credit facilities. We expect that our future available capital resources will consist primarily of our current cash balances, availability under our lines of credit, any cash generated from operations, net cash proceeds from any sale of our production assets and net cash proceeds from any equity sales or debt financing transactions.

At December 31, 2019, on a consolidated basis, we had an aggregate of $19.0 million in cash.

As of December 31, 2019, our current assets of $232.1 million exceeded our current liabilities of $160.4 million, resulting in working capital of $71.7 million. We believe that as of the date of this report, we are in compliance with all debt covenants contained in our credit facilities.

Quantitative Year-End Liquidity Status

We believe that the following amounts provide insight into our liquidity and capital resources. The following selected financial information should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements included elsewhere in this report, and the other sections of “Management’s Discussion and Analysis of Financial Condition and Results of Operations” contained in this report (dollars in thousands).

	December 31, 2019	**December 31, 2018**
Cash and cash equivalents	$ 18,997	$ 26,627
Current assets	$ 232,064	$ 168,804
Property and equipment, net	$ 332,526	$ 482,657
Current liabilities	$ 160,398	$ 231,859
Long-term debt, noncurrent portion	$ 180,795	$ 84,767
Working capital (deficit)	$ 71,666	$ (63,055)
Working capital ratio	1.45	NA

Restricted Net Assets

At December 31, 2019, we had approximately $180.9 million of net assets at our subsidiaries that were not available to be transferred to Pacific Ethanol, Inc. in the form of dividends, distributions, loans or advances due to restrictions contained in the credit facilities of these subsidiaries.

Changes in Working Capital and Cash Flows

Working capital improved to $71.7 million at December 31, 2019 from a working capital deficit of $63.1 million at December 31, 2018 as a result of an increase of $63.3 million in current assets and a decrease of $71.5 million in current liabilities.

Our current assets increased primarily due to additional assets held-for-sale of $69.8 million associated with our pending sale of our interest in Pacific Aurora.

Our current liabilities declined by $71.5 million at December 31, 2019 as compared to December 31, 2018 primarily due to our amendment of our senior secured notes and resulting long-term treatment, reducing our current portion of long-term debt by $83.7 million.

Our cash and cash equivalents declined by $7.6 million at December 31, 2019 as compared to December 31, 2018 primarily due to $23.4 million of cash used in our operating activities and $3.3 million in cash used in our investing activities in 2019, partially offset by $19.0 million in cash provided by our financing activities for the period.

Cash used in our Operating Activities

Cash used in our operating activities increased by $24.9 million in 2019 as compared to 2018. We used $23.4 million of cash from our operating activities in 2019. Specific factors that contributed to the increase in cash used in our operating activities include:

- a decrease of $33.3 million related to our higher net loss;
- a decrease of $19.4 million related to accounts receivable due to lower net sales and the timing of collections;
- a decrease of $10.2 million related to payments on operating leases under new lease accounting standards for 2019; and
- a decrease of $6.9 million related to inventories due to lower net sales and the timing of sales.

These amounts were partially offset by:

- an asset impairment of $29.3 million related to our interest in Pacific Aurora held for sale;
- an increase in depreciation of $7.1 million due to additional depreciation on leases;
- an increase in loss on debt extinguishment of $6.5 million in connection with the refinancing of our senior secured notes; and
- an increase of $12.8 million related to prepaid expenses.

Cash used in our Investing Activities

Cash used in our investing activities decreased by $11.9 million in 2019 as compared to 2018 due to reduced capital expenditures and related projects during the year.

Cash provided by our Financing Activities

We generated $19.0 million in cash from our financing activities in 2019. The increase in cash provided by our financing activities is primarily due to an increase of $21.7 million in proceeds under our credit agreements, term debt and a cogeneration contract amendment in 2019 as compared to 2018. In addition, there was a decrease of $6.8 million in payments in respect of our term and revolving debt in 2019 as compared to 2018, as we agreed with our lenders to defer certain scheduled payments.

Kinergy Operating Line of Credit

Kinergy maintains an operating line of credit for an aggregate amount of up to $100.0 million. The credit facility matures on August 2, 2022. Interest accrues under the credit facility at a rate equal to (i) the three-month London Interbank Offered Rate (“LIBOR”), plus (ii) a specified applicable margin ranging from 1.50% to 2.00%. The credit facility’s monthly unused line fee is 0.25% to 0.375% of the amount by which the maximum credit under the facility exceeds the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to Pacific Ethanol as reimbursement for management and other services provided by Pacific Ethanol to Kinergy are limited under the terms of the credit facility to $1.5 million per fiscal quarter. The credit facility also includes the accounts receivable of Pacific Ag. Products, LLC, or PAP, as additional collateral. Payments that may be made by PAP to Pacific Ethanol as reimbursement for management and other services provided by Pacific Ethanol to PAP are limited under the terms of the credit facility to $0.5 million per fiscal quarter. PAP, one of our indirect wholly-owned subsidiaries, markets our co-products and also provides raw material procurement services to our subsidiaries.

For all monthly periods in which excess borrowing availability falls below a specified level, Kinergy and PAP must collectively maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling earnings before interest, taxes, depreciation and amortization (EBITDA) divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 2.0 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness). Kinergy’s and PAP’s obligations under the credit facility are secured by a first-priority security interest in all of their assets in favor of the lender. We believe Kinergy and PAP are in compliance with this covenant. The following table summarizes Kinergy’s financial covenants and actual results for the periods presented:

	Years Ended December 31,	
	2019	**2018**
Fixed Charge Coverage Ratio Requirement	2.00	2.00
Actual	5.71	19.06
Excess	3.71	17.06

Pacific Ethanol has guaranteed all of Kinergy’s obligations under the credit facility. As of December 31, 2019, Kinergy had an outstanding balance of $78.3 million with no additional borrowing availability under the credit facility.

Pekin Credit Facilities

On December 15, 2016, PE Pekin entered into term and revolving credit facilities. PE Pekin borrowed $64.0 million under a term loan facility that matures on August 20, 2021 and $32.0 million under a revolving credit facility that matures on February 1, 2022. The PE Pekin credit facilities are secured by a first-priority security interest in all of PE Pekin’s assets. Interest initially accrued under the PE Pekin credit facilities at an annual rate equal to the 30-day LIBOR plus 3.75%, payable monthly. PE Pekin is required to make quarterly principal payments in the amount of $3.5 million on the term loan beginning on May 20, 2017, with the remaining principal balance payable at maturity on August 20, 2021. PE Pekin is required to pay monthly in arrears a fee on any unused portion of the revolving credit facility at a rate of 0.75% per annum. Prepayment of these facilities is subject to a prepayment penalty. Under the initial terms of the credit facilities, PE Pekin was required to maintain not less than $20.0 million in working capital and an annual debt service coverage ratio of not less than 1.25 to 1.0.

On August 7, 2017, PE Pekin amended its term and revolving credit facilities by agreeing to increase the interest rate under the facilities by 25 basis points to an annual rate equal to the 30-day LIBOR plus 4.00%. PE Pekin and its lender also agreed that PE Pekin is required to maintain working capital of not less than $17.5 million from August 31, 2017 through December 31, 2017 and working capital of not less than $20.0 million from January 1, 2018 and continuing at all times thereafter. In addition, the required debt service coverage ratio was reduced to 0.15 to 1.00 for the fiscal year ended December 31, 2017. PE Pekin’s actual debt service coverage ratio was 0.17 to 1.00 for the fiscal year ended December 31, 2017, 0.02 in excess of the required 0.15 to 1.00. For the month ended January 31, 2018, PE Pekin was not in compliance with its working capital requirement due to larger than anticipated repair and maintenance expenses to replace faulty equipment. PE Pekin received a waiver from its lender for this noncompliance. Further, the lender decreased PE Pekin’s working capital covenant requirement to $13.0 million for the month ended February 28, 2018, excluding from the calculation a $3.5 million principal payment previously due in May 2018.

On March 30, 2018, PE Pekin further amended its term loan facility by reducing the amount of working capital it is required to maintain to not less than $13.0 million from March 31, 2018 through November 30, 2018 and not less than $16.0 million from December 1, 2018 and continuing at all times thereafter. In addition, a principal payment in the amount of $3.5 million due for May 2018 was deferred until the maturity date of the term loan.

At December 31, 2018 and January 31, 2019, PE Pekin experienced certain covenant violations under its term and revolving credit facilities. In February 2019, PE Pekin reached an agreement with its lender to forbear until March 11, 2019 and to defer a $3.5 million principal payment until that date.

On March 21, 2019, PE Pekin amended its term and revolving credit facilities by agreeing to increase the interest rate under the facilities by 125 basis points to an annual rate equal to the 30-day LIBOR plus 5.00%. PE Pekin and its lender also agreed that it is required to maintain working capital of not less than $15.0 million from March 21, 2019 through July 15, 2019 and working capital of not less than $30.0 million from July 15, 2019 and continuing at all times thereafter. On July 15, 2019, PE Pekin and its lender agreed to a further amendment extending the aforementioned July 15, 2019 dates to November 15, 2019. On August 6, 2019, PE Pekin paid its $3,500,000 principal payment scheduled for August 20, 2019.

Under these amendments, the lender agreed to temporarily waive financial covenant violations, working capital maintenance violations and intercompany accounts receivable collections violations that occurred with respect to the credit agreement. The lenders also agreed to defer all scheduled principal payments, including further deferral of principal payments in the amount of $3.5 million each due on February 20, 2019 and May 20, 2019.

The waivers and principal deferral expired on November 15, 2019, at which time the waivers were to become permanent if PE Pekin's parent, Pacific Ethanol Central, LLC, or PE Central, made a contribution to PE Pekin in an amount equal to $30.0 million, minus the then-existing amount of PE Pekin's working capital, plus the amount of any accounts receivable owed by PE Central to PE Pekin, plus $12.0 million, or the Parent Contribution Amount. In addition, if the Parent Contribution Amount was timely received, the lender agreed to waive PE Pekin's debt service coverage ratio financial covenant for the year ended December 31, 2019. If the Parent Contribution Amount was not timely made, then the temporary waivers would automatically expire.

PE Pekin was also required to pay by November 15, 2019 the aggregate amount of $10.5 million representing all deferred and unpaid scheduled principal payments and all additional scheduled principal payments for the remainder of 2019.

On November 15, 2019, PE Pekin amended its term and revolving credit facilities by agreeing to extend the temporary waiver of violations of financial and other covenants relating to working capital maintenance, intercompany accounts receivable collections, financial projections, cash flow forecasts, and sales reports. The lender also agreed to extend the deferral of all scheduled principal payments payable on February 20, 2019, May 20, 2019 and November 15, 2019 to December 15, 2019. The amendment also made a payment default of $250,000 or more under Kinergy's credit facility or the senior secured notes, or any acceleration of indebtedness, or any termination of any commitment to lend or termination of any forbearance or other accommodation, an event of default.

The waivers and principal deferral expired on December 15, 2019. On December 15, 2019, the waivers were to become permanent if PE Central made a contribution to PE Pekin in an amount equal to the Parent Contribution Amount. In addition, if the Parent Contribution Amount was timely received, the lender agreed to waive PE Pekin's debt service coverage ratio financial covenant for the year ended December 31, 2019. If the Parent Contribution Amount was not timely made, then the temporary waivers would automatically expire.

On December 16, 2019, PE Pekin amended its term and revolving credit facilities by agreeing to extend the deferral of all scheduled principal payments payable on February 20, 2019, May 20, 2019 and November 20, 2019 to December 20, 2019.

On December 20, 2019, PE Pekin's lender agreed to temporarily waive working capital covenant violations, debt service coverage ratio covenant violations, reporting covenant violations and certain other covenant violations that occurred under the PE Pekin credit agreement, and replaced those covenants with new EBITDA and production volume covenants. PE Pekin's lender also agreed to defer all scheduled principal installments payable under the term note on February 20, 2019, May 20, 2019 and November 20, 2019 until August 20, 2021. In addition, PE Pekin was not required to make its prior scheduled quarterly principal payments of $3.5 million until September 30, 2020, at which time $3.5 million will be due, with the same amount due quarterly thereafter until maturity.

Under the amendment, PE Pekin, collectively with ICP, agreed to pay the lenders an aggregate of $40.0 million on or before September 30, 2020 to reduce the outstanding balances of the term loans under the PE Pekin credit agreement and the ICP credit agreement. The $40.0 million is an aggregate amount payable to ICP's lender and PE Pekin's lender, and allocated between them. The $40.0 million is to be funded through asset sales, proceeds of any award, judgment or settlement of litigation, or, at our election, from funds contributed to PE Pekin by us. Following receipt by the lenders under the ICP credit agreement and the PE Pekin credit agreement, collectively, of $40.0 million in full, and once any loans corresponding to the particular midwestern asset sold are repaid, additional proceeds from the sale of any of our midwestern plant assets will generally be allocated 33/34/33% among ICP's lender and PE Pekin's lender, collectively, the selling security holders, and us, respectively. Proceeds from the sale of any of our western assets will generally be allocated 33/34/33% among PE Pekin's lender and ICP's lender, collectively, the selling security holders, and us, respectively.

PE Pekin's lender also imposed cross-default terms such that, until PE Pekin's lender and ICP's lender receive $40.0 million, a default under the ICP credit agreement would constitute a default under the PE Pekin credit agreement. PE Pekin agreed to provide additional collateral security to support its obligations under the PE Pekin credit agreement, including second lien positions in our western plants, which will terminate and be released upon PE Pekin's lender's receipt of $40.0 million.

On December 29, 2019, PE Pekin agreed to amend the secured obligations under its security agreement to include PE Pekin's unconditional guarantee of the payment of up to an aggregate $40.0 million to satisfy the obligations of ICP to ICP's lender under the ICP credit agreement.

On March 20, 2020, PE Pekin and its lender agreed to defer $1.0 million in aggregate interest payments due March 20, 2020 and April 20, 2020 until May 20, 2020. On that same date, we granted to the lender a security interest in all of our equity interests in our wholly-owned subsidiary, PE Op Co., which indirectly owns our plants located on the West Coast. We also entered into intercreditor agreements with our PE Pekin and ICP lenders, and the agent for our senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

ICP Credit Facilities

On September 15, 2017, ICP entered into term and revolving credit facilities. ICP borrowed $24.0 million under a term loan facility that matures on September 20, 2021 and $18.0 million under a revolving credit facility that matures on September 1, 2022. The ICP credit facilities are secured by a first-priority security interest in all of ICP's assets. Interest accrues under the ICP credit facilities at an annual rate equal to the 30-day LIBOR plus 3.75%, payable monthly. ICP is required to make quarterly consecutive principal payments in the amount of $1.5 million. ICP is required to pay monthly in arrears a fee on any unused portion of the revolving credit facility at a rate of 0.75% per annum. Prepayment of these facilities is subject to a prepayment penalty. Under the terms of the credit facilities, ICP is required to maintain not less than $8.0 million in working capital and an annual debt service coverage ratio of not less than 1.5 to 1.0, beginning for the year ended December 31, 2018. As of September 30, 2019, ICP had no additional borrowing availability under its revolving credit facility. As of September 30, 2019, ICP did not meet its minimum working capital requirement, however, ICP's lender subsequently waived the minimum working capital deficiency.

On December 20, 2019, ICP amended its term and revolving credit facilities under which ICP's lender granted waivers for certain ICP covenant defaults and replaced those covenants with new EBITDA and production volume covenants. ICP's lender also imposed cross-default terms such that, until ICP's lender and PE Pekin's lender receive an aggregate of $40.0 million, a default under the PE Pekin credit agreement would constitute a default under the ICP credit agreement. ICP agreed to provide additional collateral security to support its obligations under the ICP credit agreement, including second lien positions in our western plants, which will terminate and be released upon ICP's lender's receipt of an aggregate of $40.0 million. ICP's prior scheduled principal payment of $1.5 million, originally due on December 20, 2019, was deferred to the maturity date of September 20, 2021. Scheduled quarterly principal payments of $1.5 million will resume March 20, 2020.

Under the amendment, ICP, collectively with PE Pekin, agreed to pay the lenders an aggregate of $40.0 million on or before September 30, 2020 to reduce the outstanding balances of the term loans under the ICP credit agreement and the PE Pekin credit agreement. The $40.0 million is an aggregate amount payable to ICP's lender and PE Pekin's lender, and allocated between them. The $40.0 million is to be funded through asset sales, proceeds of any award, judgment or settlement of litigation, or, at our election, from funds contributed to ICP by us. Following receipt by the lenders under the ICP credit agreement and the PE Pekin credit agreement, collectively, of $40.0 million in full, and once any loans corresponding to the particular midwestern asset sold are repaid, any additional proceeds from a sale of our midwestern plant assets will generally be allocated 33/34/33% among ICP's lender and PE Pekin's lender, collectively, the selling security holders, and us, respectively. Proceeds from the sale of any of our western assets will generally be allocated 33/34/33% among PE Pekin's lender and ICP's lender, collectively, the selling security holders, and us, respectively.

On December 29, 2019, ICP agreed to amend the secured obligations under its security agreement to include ICP's unconditional guarantee of the payment of up to an aggregate $40.0 million to satisfy the obligations of PE Pekin to PE Pekin's lender under the PE Pekin credit agreement.

On March 20, 2020, ICP and its lender agreed to defer a $1.5 million principal payment due March 20, 2020 and $0.3 million in aggregate interest payments due March 20, 2020 and April 20, 2020 until May 20, 2020. On that same date, we granted to the lender a security interest in all of our equity interests in PE Op Co. We also entered into intercreditor agreements with our PE Pekin and ICP lenders, and the agent for our senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

Pacific Ethanol, Inc. Notes Payable

On December 12, 2016, we entered into a Note Purchase Agreement with five accredited investors. On December 15, 2016, under the terms of the Note Purchase Agreement, we sold $55.0 million in aggregate principal amount of our senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold. On June 26, 2017, we entered into a second Note Purchase Agreement with five accredited investors. On June 30, 2017, under the terms of the second Note Purchase Agreement, we sold an additional $13.9 million in aggregate principal amount of our senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold, for a total of $68.9 million in aggregate principal amount of senior secured notes.

The notes had an original maturity date of December 15, 2019. Interest on the notes accrued at an annual rate equal to (i) the greater of 1% and the three-month LIBOR, plus 7.0% from the closing through December 14, 2017, (ii) the greater of 1% and three-month LIBOR, plus 9% between December 15, 2017 and December 14, 2018, and (iii) the greater of 1% and three-month LIBOR plus 11% between December 15, 2018 and the maturity date. The interest rate would increase by an additional 2% per annum above the interest rate otherwise applicable upon the occurrence and during the continuance of an event of default until cured. Interest was payable in cash in arrears on the 15th calendar day of each March, June, September and December. We are required to pay all outstanding principal and any accrued and unpaid interest on the notes on the maturity date. We may, at our option, prepay the outstanding principal amount of the notes at any time without premium or penalty. Pacific Ethanol, Inc. issued the notes, which are secured by a first-priority security interest in the equity interest held by Pacific Ethanol, Inc. in PE Op. Co.

On December 16, 2019, we amended the notes to extend the maturity date from December 15, 2019 to December 23, 2019 and amended the interest rate from the greater of 1% and the three-month LIBOR, plus 11% between December 15, 2018 through December 14, 2019 to 15% commencing on September 15, 2019. Under the amendment, we also agreed to pay the December 15, 2019 interest payment 50% in cash and 50% in-kind through the issuance of an additional note in the principal amount equal thereto.

On December 22, 2019, we amended and restated the notes which extended the maturity date from December 23, 2019 to December 15, 2021. Interest on the Notes accrues at a rate of 15% per annum, payable quarterly.

On March 20, 2020, we and the noteholders agreed to defer a $2.5 million aggregate interest payment due March 15, 2020 until May 20, 2020. On that same date, ICP granted a junior lien in certain of its personal property to the noteholders, and PE Central granted a junior lien in certain of its personal property to the noteholders. PE Central also pledged its equity interests in Pacific Aurora, PE Pekin and ICP in favor of the noteholders. In addition, PE Op Co. and Pacific Ethanol West, LLC, which directly owns our plants located on the West Coast, granted a security interest in certain of their personal property to the noteholders. We also entered into intercreditor agreements with our PE Pekin and ICP lenders, and the agent for our senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

At-the-Market Program

We have established an "at-the-market" equity distribution program under which we may offer and sell shares of common stock to, or through, sales agents by means of ordinary brokers' transactions on the NASDAQ, in block transactions, or as otherwise agreed to between us and the sales agent at prices we deem appropriate. We are under no obligation to offer and sell shares of common stock under the program. For the year ended December 31, 2019, we sold 3.1 million shares of common stock through our "at-the-market" equity program that resulted in net proceeds of $3.7 million and fees paid to our sales agent of approximately $66,000. The net proceeds from these issuances were used to repay a portion of our senior secured notes.

Effects of Inflation

The impact of inflation was not significant to our financial condition or results of operations for 2019 or 2018.

Critical Accounting Policies

Our discussion and analysis of our financial condition and results of operations is based upon our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of net sales and expenses for each period. The following represents a summary of our critical accounting policies, defined as those policies that we believe are the most important to the portrayal of our financial condition and results of operations and that require management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effects of matters that are inherently uncertain.

Revenue Recognition

We recognize revenue primarily from sales of ethanol and its related co-products.

We have nine ethanol production facilities from which we produce and sell ethanol to our customers through our subsidiary Kinergy. Kinergy enters into sales contracts with ethanol customers under exclusive intercompany ethanol sales agreements with each of our nine ethanol plants. Kinergy also acts as a principal when it purchases third party ethanol which it resells to its customers. Finally, Kinergy has exclusive sales agreements with other third-party owned ethanol plants under which it sells their ethanol production for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

We have nine ethanol production facilities from which we produce and sell co-products to our customers through our subsidiary PAP. PAP enters into sales contracts with co-product customers under exclusive intercompany co-product sales agreements with each of the Company's nine ethanol plants.

We recognize revenue from sales of ethanol and co-products at the point in time when the customer obtains control of such products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, we enter into contracts with customers that contain multiple performance obligations to deliver volumes of ethanol or co-products over a contractual period of less than 12 months. We allocate the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognizes the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When we are the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When we are the principal, we control the products before they are transferred to the customer because we are primarily responsible for fulfilling the promise to provide the products, we have inventory risk before the product has been transferred to a customer and we have discretion in establishing the price for the product.

See "Note 4 – Segments" of the Notes to Consolidated Financial Statements commencing on page F-19 of this report for our revenue-breakdown by type of contract.

Impairment of Long-Lived Assets and Held-for-Sale Classification

Our long-lived assets have been primarily associated with our ethanol production facilities, reflecting their original cost, adjusted for depreciation and any subsequent impairment.

We assess the impairment of long-lived assets, including property and equipment, when events or changes in circumstances indicate that the fair value of an asset could be less than the net book value of the asset. Generally, we assess long-lived assets for impairment by first determining the forecasted, undiscounted cash flows each asset is expected to generate plus the net proceeds expected from the sale of the asset. If the amount of proceeds is less than the carrying value of the asset, we then determine the fair value of the asset. An impairment loss would be recognized when the fair value is less than the related net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are judgments based on our experience and knowledge of our operations and the industry in which we operate. These forecasts could be significantly affected by future changes in market conditions, the economic environment, including inflation, and the purchasing decisions of our customers.

We review our intangible assets with indefinite lives at least annually or more frequently if impairment indicators arise. In our review, we determine the fair value of these assets using market multiples and discounted cash flow modeling and compare it to the net book value of the acquired assets.

We entered into a term sheet with ACEC dated December 19, 2019 for the sale of our interest in Pacific Aurora. We reviewed the criteria for held-for-sale classification of the long-lived assets associated with the pending transaction. Our analysis concluded that these long-lived assets shall be classified as held-for-sale with a related impairment of $29.3 million to fair value. We did not recognize any other asset impairment charges in 2019 and 2018.

Valuation Allowance for Deferred Taxes

We account for income taxes under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax bases of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

We evaluate our deferred tax asset balance for realizability. To the extent we believe it is more likely than not that some portion or all of our deferred tax assets will not be realized, we will establish a valuation allowance against the deferred tax assets. Realization of our deferred tax assets is dependent upon future taxable income during the periods in which the associated temporary differences become deductible. We consider the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment. These changes, if any, may require possible material adjustments to these deferred tax assets, resulting in a reduction in net income or an increase in net loss in the period when such determinations are made.

Our pre-tax consolidated losses were $101.3 million and $68.5 million for the years ended December 31, 2019 and 2018, respectively. Based on our current and prior results, we do not have significant evidence to support a conclusion that we will more likely than not be able to benefit from our remaining deferred tax assets. As such, we have recorded a valuation allowance against our net deferred tax assets.

Derivative Instruments

We evaluate our contracts to determine whether the contracts are derivative instruments. Management may elect to exempt certain forward contracts that meet the definition of a derivative from derivative accounting as normal purchases or normal sales. Normal purchases and normal sales are contracts that provide for the purchase or sale of something other than a financial instrument or derivative instrument that will be delivered in quantities expected to be used or sold over a reasonable period in the normal course of business. Contracts that meet the requirements of normal purchases or sales are documented as normal and exempted from the fair value accounting and reporting requirements of derivative accounting.

We enter into short-term cash, option and futures contracts as a means of securing purchases of corn, natural gas and sales of ethanol and managing exposure to changes in commodity prices. All of our exchange-traded derivatives are designated as non-hedge derivatives for accounting purposes, with changes in fair value recognized in net income. Although the contracts are economic hedges of specified risks, they are not designated as and accounted for as hedging instruments.

Realized and unrealized gains and losses related to exchange-traded derivative contracts are included as a component of cost of goods sold in the accompanying financial statements. The fair values of contracts entered through commodity exchanges are presented on the accompanying balance sheet as derivative instruments. The selection of normal purchase or sales contracts, and use of hedge accounting, are accounting policies that can change the timing of recognition of gains and losses in the statement of operations.

Impact of New Accounting Pronouncements

See "Note 1 – Organization and Significant Accounting Policies – Recent Accounting Pronouncements" of the Notes to Consolidated Financial Statements commencing on page F-9 of this report.

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

Not applicable.

Item 8. Financial Statements and Supplementary Data.

Reference is made to the financial statements, which begin at page F-1 of this report.

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

None.

Item 9A. Controls and Procedures.

We conducted an evaluation under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. The term “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by the company in the reports it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the Securities and Exchange Commission’s rules and forms. Disclosure controls and procedures also include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded as of December 31, 2019 that our disclosure controls and procedures were effective at a reasonable assurance level.

Management’s Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting is 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. Our internal control over financial reporting includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

(ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our 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.

A material weakness is defined by the Public Company Accounting Oversight Board’s Audit Standards AS 2201 as being a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company’s annual or interim financial statements will not be prevented or detected on a timely basis by the company’s internal controls.

Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework set forth in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework set forth in *Internal Control — Integrated Framework (2013),* our management concluded that our internal control over financial reporting was effective as of December 31, 2019.

Inherent Limitations on the Effectiveness of Controls

Management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control systems are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in a cost-effective control system, no evaluation of internal control over financial reporting can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, have been or will be detected.

These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of a simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the most recently completed fiscal quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information under the captions "Information about our Board of Directors, Board Committees and Related Matters" appearing in the Proxy Statement, is hereby incorporated by reference.

Item 11. Executive Compensation.

The information under the caption "Executive Compensation and Related Information," appearing in the Proxy Statement, is hereby incorporated by reference.

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

The information under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information," appearing in the Proxy Statement, is hereby incorporated by reference.

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

The information under the captions "Certain Relationships and Related Transactions" and "Information about our Board of Directors, Board Committees and Related Matters—Director Independence" appearing in the Proxy Statement, is hereby incorporated by reference.

Item 14. Principal Accounting Fees and Services.

The information under the caption "Audit Matters—Principal Accountant Fees and Services," appearing in the Proxy Statement, is hereby incorporated by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules.

(a)(1) Financial Statements

Reference is made to the financial statements listed on and attached following the Index to Consolidated Financial Statements contained on page F-1 of this report.

(a)(2) Financial Statement Schedules

None.

(a)(3) Exhibits

Reference is made to the exhibits listed on the Index to Exhibits.

Item 16. Form 10-K Summary.

None.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
Pacific Ethanol, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Pacific Ethanol, Inc. and its subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, other comprehensive income (loss), stockholders' equity and cash flows for the years then ended, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Emphasis of Matter Regarding Going Concern

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the financial statements, the Company has suffered recurring losses from operations and has limited additional liquidity available. This raises substantial doubt about the Company's ability to continue as a going concern. Management's plans in regard to these matters also are described in Note 1. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting as of December 31, 2019. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion as of December 31, 2019.

Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

/S/ RSM US LLP

We have served as the Company's auditor since 2015.

Sioux Falls, South Dakota
March 30, 2020

PACIFIC ETHANOL, INC.
CONSOLIDATED BALANCE SHEETS
(in thousands, except shares and par value)

ASSETS	December 31, 2019	December 31, 2018
Current Assets:		
Cash and cash equivalents	$ 18,997	$ 26,627
Accounts receivable, net of allowance for doubtful accounts of $39 and $12, respectively	74,307	67,636
Inventories	60,600	57,820
Prepaid inventory	1,528	3,090
Derivative assets	2,438	1,765
Assets held-for-sale	69,764	—
Other current assets	4,430	11,866
Total current assets	232,064	168,804
Property and equipment, net	332,526	482,657
Other Assets:		
Right of use operating lease assets, net	24,346	—
Assets held-for-sale	16,500	—
Intangible asset	2,678	2,678
Other assets	4,381	5,842
Total other assets	47,905	8,520
Total Assets	$ 612,495	$ 659,981

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
CONSOLIDATED BALANCE SHEETS (CONTINUED)
(in thousands, except shares and par value)

LIABILITIES AND STOCKHOLDERS' EQUITY	December 31, 2019	December 31, 2018
Current Liabilities:		
Accounts payable – trade	$ 29,277	$ 48,176
Accrued liabilities	22,331	23,421
Current portion – operating leases	3,457	—
Current portion – long-term debt, net	63,000	146,671
Derivative liabilities	1,860	6,309
Liabilities held-for-sale	34,413	—
Other current liabilities	6,060	7,282
Total current liabilities	160,398	231,859
Long-term debt, net of current portion	180,795	84,767
Operating leases, net of current portion	21,171	—
Other liabilities	23,086	23,990
Total Liabilities	385,450	340,616
Commitments and contingencies (Notes 1, 8, 9, 10 and 15)		
Stockholders' Equity:		
Preferred stock, $0.001 par value; 10,000,000 shares authorized:		
Series A: 1,684,375 shares authorized; no shares issued and outstanding as of December 31, 2019 and 2018	—	—
Series B: 1,580,790 shares authorized; 926,942 shares issued and outstanding as of December 31, 2019 and 2018; liquidation preference of $18,394 as of December 31, 2019	1	1
Common stock, $0.001 par value; 300,000,000 shares authorized; 55,508,314 and 45,771,422 shares issued and outstanding as of December 31, 2019 and 2018, respectively	56	46
Non-voting common stock, $0.001 par value; 3,553,000 shares authorized; 896 shares issued and outstanding as of December 31, 2019 and 2018	—	—
Additional paid-in capital	942,307	932,179
Accumulated other comprehensive loss	(2,370)	(2,459)
Accumulated deficit	(720,214)	(630,000)
Total Pacific Ethanol, Inc. stockholders' equity	219,780	299,767
Noncontrolling interests	7,265	19,598
Total stockholders' equity	227,045	319,365
Total Liabilities and Stockholders' Equity	$ 612,495	$ 659,981

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Years Ended December 31, 2019	Years Ended December 31, 2018
Net sales	$ 1,424,881	$ 1,515,371
Cost of goods sold	1,434,819	1,530,535
Gross loss	(9,938)	(15,164)
Selling, general and administrative expenses	35,453	36,373
Asset impairment	29,292	—
Loss from operations	(74,683)	(51,537)
Loss on debt extinguishment	(6,517)	—
Interest expense, net	(20,206)	(17,132)
Other income, net	104	171
Loss before benefit for income taxes	(101,302)	(68,498)
Benefit for income taxes	20	562
Consolidated net loss	(101,282)	(67,936)
Net loss attributed to noncontrolling interests	12,333	7,663
Net loss attributed to Pacific Ethanol, Inc.	$ (88,949)	$ (60,273)
Preferred stock dividends	$ (1,265)	$ (1,265)
Loss available to common stockholders	$ (90,214)	$ (61,538)
Loss per share, basic and diluted	$ (1.90)	$ (1.42)
Weighted-average shares outstanding, basic and diluted	47,384	43,376

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)

	Years Ended December 31,	
	2019	**2018**
Consolidated net loss	$ (101,282)	$ (67,936)
Other comprehensive income (expense) – net gain (loss) arising during the period on defined benefit pension plans	89	(225)
Total comprehensive loss	(101,193)	(68,161)
Comprehensive loss attributed to noncontrolling interests	12,333	7,663
Comprehensive loss attributed to Pacific Ethanol, Inc.	$ (88,860)	$ (60,498)

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands)

	Preferred Stock		Common Stock		Additional Paid-In	Accumulated	Accum. Other Comprehensive Income	Non-Controlling	
	Shares	Amount	Shares	Amount	Capital	Deficit	(Loss)	Interests	Total
Balances, December 31, 2017	927	$ 1	43,986	$ 44	$ 927,090	$ (568,462)	$ (2,234)	$ 27,261	$ 383,700
Stock-based compensation expense – restricted stock and options to employees and directors, net of cancellations and tax	—	—	947	1	3,033	—	—	—	3,034
Common stock issuances	—	—	838	1	2,056	—	—	—	2,057
Pension plan adjustment	—	—	—	—	—	—	(225)	—	(225)
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net loss	—	—	—	—	—	(60,273)	—	(7,663)	(67,936)
Balances, December 31, 2018	927	$ 1	45,771	$ 46	$ 932,179	$ (630,000)	$ (2,459)	$ 19,598	$ 319,365
Stock-based compensation expense – restricted stock and options to employees and directors, net of cancellations and tax	—	—	1,069	1	2,650	—	—	—	2,651
Common stock issuances ATM	—	—	3,137	3	3,667	—	—	—	3,670
Senior Notes Amendment: Stock Issuance	—	—	5,531	6	3,811	—	—	—	3,817
Pension plan adjustment	—	—	—	—	—	—	89	—	89
Preferred stock dividends	—	—	—	—	—	(1,265)	—	—	(1,265)
Net loss	—	—	—	—	—	(88,949)	—	(12,333)	(101,282)
Balances, December 31, 2019	927	$ 1	55,508	$ 56	$ 942,307	$ (720,214)	$ (2,370)	$ 7,265	$ 227,045

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	For the Years Ended December 31, 2019	For the Years Ended December 31, 2018
Operating Activities:		
Consolidated net loss	$ (101,282)	$ (67,936)
Adjustments to reconcile consolidated net loss to cash provided by (used in) operating activities:		
Depreciation and amortization of intangibles	47,909	40,849
Asset impairment	29,292	—
Loss on debt extinguishment	6,517	—
Deferred income taxes	2	27
Inventory valuation	—	(350)
(Gain) loss on derivative instruments	(555)	6,714
Amortization of deferred financing costs	511	900
Amortization of debt discounts	689	720
Noncash compensation	2,809	3,438
Bad debt expense	27	45
Interest expense added to Senior Notes	1,185	—
Changes in operating assets and liabilities:		
Accounts receivable	(6,698)	12,663
Inventories	(2,780)	4,080
Prepaid expenses and other assets	10,197	(3,880)
Prepaid inventory	1,562	191
Operating leases	(10,161)	—
Accounts payable and accrued expenses	(2,587)	4,105
Net cash provided by (used in) operating activities	$ (23,363)	$ 1,566
Investing Activities:		
Additions to property and equipment	$ (3,281)	$ (15,154)
Net cash used in investing activities	$ (3,281)	$ (15,154)
Financing Activities:		
Proceeds from issuances of common stock	$ 3,670	$ 2,057
Proceeds from CoGen contract amendment	8,036	—
Proceeds from assessment financing	—	2,043
Payments on assessment financing	—	(415)
Net proceeds (payments) on Kinergy's line of credit	21,282	7,578
Payments on plant borrowings	(8,000)	(16,500)
Payments on senior notes	(3,748)	(2,000)
Preferred stock dividend payments	(946)	(1,265)
Payments on capital leases	—	(772)
Debt issuance costs	(1,280)	—
Net cash provided by (used in) financing activities	$ 19,014	$ (9,274)
Net decrease in cash and cash equivalents	(7,630)	(22,862)
Cash and cash equivalents at beginning of period	26,627	49,489
Cash and cash equivalents at end of period	$ 18,997	$ 26,627
Supplemental Information:		
Interest paid	$ 18,763	$ 15,147
Income tax refunds	$ —	$ 743
Noncash financing and investing activities:		
Initial right of use assets and liabilities recorded under ASC 842	$ 43,753	$ —
Issuance of common stock for senior note amendment	$ 3,817	$ —
Issuance of warrants for senior note amendment	$ 979	$ —
Accrued preferred stock dividends	$ 319	$ —

The accompanying notes are an integral part of these consolidated financial statements.

PACIFIC ETHANOL, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND SIGNIFICANT ACCOUNTING POLICIES.

Organization and Business – The consolidated financial statements include, for all periods presented, the accounts of Pacific Ethanol, Inc., a Delaware corporation ("Pacific Ethanol"), and its direct and indirect subsidiaries (collectively, the "Company"), including its wholly-owned subsidiaries, Kinergy Marketing LLC, an Oregon limited liability company ("Kinergy"), Pacific Ag. Products, LLC, a California limited liability company ("PAP"), PE Op Co., a Delaware corporation ("PE Op Co.")and Illinois Corn Processing, LLC ("ICP").

On December 15, 2016, the Company and Aurora Cooperative Elevator Company, a Nebraska cooperative corporation ("ACEC"), closed a transaction under a contribution agreement under which the Company contributed its Aurora, Nebraska ethanol facilities and ACEC contributed its Aurora grain elevator and related grain handling assets to Pacific Aurora, LLC ("Pacific Aurora") in exchange for equity interests in Pacific Aurora. On December 15, 2016, concurrently with the closing under the contribution agreement, the Company sold a portion of its equity interest in Pacific Aurora to ACEC. As a result, the Company owns 73.93% of Pacific Aurora and ACEC owns 26.07% of Pacific Aurora. Further, the Company has consolidated 100% of the results of Pacific Aurora and recorded ACEC's 26.07% equity interest as noncontrolling interests in the accompanying financial statements for all periods presented.

The Company is a leading producer and marketer of low-carbon renewable fuels in the United States. The Company's four ethanol plants in the Western United States (together with their respective holding companies, the "Pacific Ethanol West Plants") are located in close proximity to both feed and ethanol customers and thus enjoy unique advantages in efficiency, logistics and product pricing. The Company's five ethanol plants in the Midwest (together with their respective holding companies, the "Pacific Ethanol Central Plants") are located in the heart of the Corn Belt, benefit from low-cost and abundant feedstock production and allow for access to many additional domestic markets. In addition, the Company's ability to load unit trains from these facilities in the Midwest allows for greater access to international markets.

The Company has a combined production capacity of 605 million gallons per year, markets, on an annualized basis, nearly 1.0 billion gallons of ethanol and specialty alcohols, and produces, on an annualized basis, over 3.0 million tons of co-products on a dry matter basis, such as wet and dry distillers grains, wet and dry corn gluten feed, condensed distillers solubles, corn gluten meal, corn germ, dried yeast and CO_2.

As of December 31, 2019, all but one of the Company's production facilities, specifically, the Company's Aurora East facility, were operating. As market conditions change, the Company may increase, decrease or idle production at one or more operating facilities or resume operations at any idled facility.

Basis of Presentation – The consolidated financial statements and related notes have been prepared in accordance with accounting principles generally accepted in the United States ("GAAP") and include the accounts of the Company. All significant intercompany accounts and transactions have been eliminated in consolidation.

Liquidity – The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern, which contemplates the realization of assets and the satisfaction of liabilities in the normal course of business. As a result of ethanol industry conditions that have negatively affected the Company's business, the Company does not currently have sufficient liquidity to meet its anticipated working capital, debt service and other liquidity needs in the near-term. The Company has reduced production at its facilities by more than 60% subsequent to year end due to market conditions and in an effort to conserve capital. The Company has also taken and expects to take additional steps to preserve liquidity. However, despite any additional cost-saving steps that the Company may take, the Company does not believe that it has sufficient working capital to continue operations for the next twelve months, unless it successfully restructures its debt, sells assets, experiences a significant improvement in margins and/or obtains other sources of liquidity. In addition, if margins do not promptly and sustainably improve from current levels, the Company may be forced to further curtail or cease production at one or more of its operating facilities. As a result of these factors, there exists substantial doubt as to the Company's ability to continue as a going concern.

The Company has agreed with its lenders to present by April 20, 2020 a comprehensive plan to restructure its assets and liabilities. The Company has appointed a chief restructuring officer to facilitate the development of such a plan and to assist in the Company's present strategic initiatives. The Company expects the plan will include completing planned asset sales, additional assets sales, soliciting new investments in the Company or its assets, further debt payment deferrals and reductions, cutting overhead expenses and other cash preserving initiatives. The Company intends that the plan will provide the means to maintain sufficient liquidity for the next twelve months.

Segments – A segment is a component of an enterprise whose operating results are regularly reviewed by the enterprise's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. The Company determines and discloses its segments in accordance with the Financial Accounting Standards Board's ("FASB") Accounting Standards Codification Section 280, *Segment Reporting*, which defines how to determine segments. The Company reports its financial and operating performance in two reportable segments: (1) ethanol production, which includes the production and sale of ethanol, specialty alcohols and co-products, with all of the Company's production facilities aggregated, and (2) marketing and distribution, which includes marketing and merchant trading for Company-produced ethanol, specialty alcohols and co-products and third-party ethanol.

Cash and Cash Equivalents – The Company considers all highly-liquid investments with an original maturity of three months or less to be cash equivalents. The Company maintains its accounts at several financial institutions. These cash balances regularly exceed amounts insured by the Federal Deposit Insurance Corporation, however, the Company does not believe it is exposed to any significant credit risk on these balances.

Accounts Receivable and Allowance for Doubtful Accounts – Trade accounts receivable are presented at face value, net of the allowance for doubtful accounts. The Company sells ethanol to gasoline refining and distribution companies, sells distillers grains and other feed co-products to dairy operators and animal feedlots and sells corn oil to poultry and biodiesel customers generally without requiring collateral. Due to a limited number of ethanol customers, the Company had significant concentrations of credit risk from sales of ethanol as of December 31, 2019 and 2018, as described below.

The Company maintains an allowance for doubtful accounts for balances that appear to have specific collection issues. The collection process is based on the age of the invoice and requires attempted contacts with the customer at specified intervals. If, after a specified number of days, the Company has been unsuccessful in its collection efforts, a bad debt allowance is recorded for the balance in question. Delinquent accounts receivable are charged against the allowance for doubtful accounts once uncollectibility has been determined. The factors considered in reaching this determination are the apparent financial condition of the customer and the Company's success in contacting and negotiating with the customer. If the financial condition of the Company's customers were to deteriorate, resulting in an impairment of ability to make payments, additional allowances may be required.

Of the accounts receivable balance, approximately $63,736,000 and $54,820,000 at December 31, 2019 and 2018, respectively, were used as collateral under Kinergy's operating line of credit. The allowance for doubtful accounts was $39,000 and $12,000 as of December 31, 2019 and 2018, respectively. The Company recorded a bad debt expense of $27,000 and $45,000 for the years ended December 31, 2019 and 2018, respectively. The Company does not have any off-balance sheet credit exposure related to its customers.

Concentration Risks – Credit risk represents the accounting loss that would be recognized at the reporting date if counterparties failed completely to perform as contracted. Concentrations of credit risk, whether on- or off-balance sheet, that arise from financial instruments exist for groups of customers or counterparties when they have similar economic characteristics that would cause their ability to meet contractual obligations to be similarly affected by changes in economic or other conditions described below. Financial instruments that subject the Company to credit risk consist of cash balances maintained in excess of federal depository insurance limits and accounts receivable which have no collateral or security. The Company has not experienced any significant losses in such accounts and believes that it is not exposed to any significant risk of loss of cash.

The Company sells fuel-grade ethanol to gasoline refining and distribution companies. The Company sold ethanol to customers representing 10% or more of the Company's total net sales, as follows.

	Years Ended December 31,	
	2019	2018
Customer A	12%	14%
Customer B	10%	11%

The Company had accounts receivable due from these customers totaling $15,624,000 and $13,405,000, representing 21% and 20% of total accounts receivable, as of December 31, 2019 and 2018, respectively.

The Company purchases corn, its largest cost component in producing ethanol, from its suppliers. The Company purchased corn from suppliers representing 10% or more of the Company's total corn purchases, as follows:

	Years Ended December 31,	
	2019	2018
Supplier A	18%	17%
Supplier B	11%	11%
Supplier C	10%	14%
Supplier D	10%	10%

As of December 31, 2019, approximately 37% of the Company's employees are covered by a collective bargaining agreement.

Inventories – Inventories consisted primarily of bulk ethanol, specialty alcohols, corn, co-products, low-carbon and Renewable Identification Number ("RIN") credits and unleaded fuel, and are valued at the lower of cost or net realizable value, with cost determined on a first-in, first-out basis. Inventory is net of a $1,290,000 and $2,328,000 valuation adjustment as of December 31, 2019 and 2018, respectively. Inventory balances consisted of the following (in thousands):

	December 31,	
	2019	2018
Finished goods	$ 38,194	$ 35,778
Work in progress	7,426	6,855
Raw materials	7,890	7,233
Low-carbon and RIN credits	5,690	6,130
Other	1,400	1,824
Total	$ 60,600	$ 57,820

Property and Equipment – Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the following estimated useful lives:

Buildings	40 years
Facilities and plant equipment	10 – 25 years
Other equipment, vehicles and furniture	5 – 10 years

The cost of normal maintenance and repairs is charged to operations as incurred. Significant capital expenditures that increase the life of an asset are capitalized and depreciated over the estimated remaining useful life of the asset. The cost of property and equipment sold, or otherwise disposed of, and the related accumulated depreciation or amortization are removed from the accounts, and any resulting gains or losses are reflected in current operations.

Intangible Asset – The Company assesses indefinite-lived intangible assets for impairment annually, or more frequently if circumstances indicate impairment may have occurred. If the carrying value of an indefinite-lived intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. If the Company determines that an impairment charge is needed, the charge will be recorded as an asset impairment in the consolidated statements of operations.

Leases – In February 2016, the FASB issued new guidance on accounting for leases (ASC 842). Under the new guidance, lessees are required to recognize the following for all leases (with the exception of short-term leases) at the commencement date: (1) a lease liability, which is a lessee's obligation to make lease payments arising from a lease, measured on a discounted cash flow basis; and (2) a "right of use" asset, which is an asset that represents the lessee's right to use the specified asset for the lease term. Under the new guidance, lessor accounting is largely unchanged, with some minor exceptions. Lease expense under the new guidance is substantially the same as prior to the adoption. See Note 9 for further information.

Derivative Instruments and Hedging Activities – Derivative transactions, which can include exchange-traded forward contracts and futures positions on the New York Mercantile Exchange or the Chicago Board of Trade, are recorded on the balance sheet as assets and liabilities based on the derivative's fair value. Changes in the fair value of derivative contracts are recognized currently in income unless specific hedge accounting criteria are met. If derivatives meet those criteria, and hedge accounting is elected, effective gains and losses are deferred in accumulated other comprehensive income (loss) and later recorded together with the hedged item in consolidated income (loss). For derivatives designated as a cash flow hedge, the Company formally documents the hedge and assesses the effectiveness with associated transactions. The Company has designated and documented contracts for the physical delivery of commodity products to and from counterparties as normal purchases and normal sales.

Revenue Recognition – The Company recognizes revenue under ASC 606. The provisions of ASC 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 reflecting the payment to which an entity expects to be entitled in exchange for those goods or services. ASC 606 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.

Effective January 1, 2018, the Company adopted ASC 606 using the modified retrospective method for all of its contracts. Following the adoption of ASC 606, the Company continues to recognize revenue at a point-in-time when control of goods transfers to the customer. The timing of recognition is consistent with the Company's previous revenue recognition accounting policy under which the Company recognized revenue when title and risk of loss pass to the customer and collectability was reasonably assured. In addition, ASC 606 did not impact the Company's presentation of revenue on a gross or net basis.

The Company recognizes revenue primarily from sales of ethanol and its related co-products.

The Company has nine ethanol production facilities from which it produces and sells ethanol to its customers through Kinergy. Kinergy enters into sales contracts with ethanol customers under exclusive intercompany ethanol sales agreements with each of the Company's nine ethanol plants. Kinergy also acts as a principal when it purchases third party ethanol which it resells to its customers. Finally, Kinergy has exclusive sales agreements with other third-party owned ethanol plants under which it sells their ethanol production for a fee plus the costs to deliver the ethanol to Kinergy's customers. These sales are referred to as third-party agent sales. Revenue from these third-party agent sales is recorded on a net basis, with Kinergy recognizing its predetermined fees and any associated delivery costs.

The Company has nine ethanol production facilities from which it produces and sells co-products to its customers through PAP. PAP enters into sales contracts with co-product customers under exclusive intercompany co-product sales agreements with each of the Company's nine ethanol plants.

The Company recognizes revenue from sales of ethanol and co-products at the point in time when the customer obtains control of such products, which typically occurs upon delivery depending on the terms of the underlying contracts. In some instances, the Company enters into contracts with customers that contain multiple performance obligations to deliver volumes of ethanol or co-products over a contractual period of less than 12 months. The Company allocates the transaction price to each performance obligation identified in the contract based on relative standalone selling prices and recognizes the related revenue as control of each individual product is transferred to the customer in satisfaction of the corresponding performance obligations.

When the Company is the agent, the supplier controls the products before they are transferred to the customer because the supplier is primarily responsible for fulfilling the promise to provide the product, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product. When the Company is the principal, the Company controls the products before they are transferred to the customer because the Company is primarily responsible for fulfilling the promise to provide the products, has inventory risk before the product has been transferred to a customer and has discretion in establishing the price for the product.

See Note 4 for the Company's revenue by type of contracts.

Shipping and Handling Costs – The Company accounts for shipping and handling costs relating to contracts with customers as costs to fulfill its promise to transfer its products. Accordingly, the costs are classified as a component of cost of goods sold in the accompanying consolidated statements of operations.

Selling Costs – Selling costs associated with the Company's product sales are classified as a component of selling, general and administrative expenses in the accompanying consolidated statements of operations.

Stock-Based Compensation – The Company accounts for the cost of employee services received in exchange for the award of equity instruments based on the fair value of the award, determined on the date of grant. The expense is recognized over the period during which an employee is required to provide services in exchange for the award. The Company accounts for forfeitures as they occur. The Company recognizes stock-based compensation expense as a component of selling, general and administrative expenses in the consolidated statements of operations.

Impairment of Long-Lived Assets – The Company assesses the impairment of long-lived assets, including property and equipment, internally developed software and purchased intangibles subject to amortization, when events or changes in circumstances indicate that the fair value of assets could be less than their net book value. In such event, the Company assesses long-lived assets for impairment by first determining the forecasted, undiscounted cash flows the asset group is expected to generate plus the net proceeds expected from the sale of the asset group. If this amount is less than the carrying value of the asset, the Company will then determine the fair value of the asset group. An impairment loss would be recognized when the fair value is less than the related asset group's net book value, and an impairment expense would be recorded in the amount of the difference. Forecasts of future cash flows are judgments based on the Company's experience and knowledge of its operations and the industries in which it operates. These forecasts could be significantly affected by future changes in market conditions, the economic environment, including inflation, and purchasing decisions of the Company's customers. The Company performed an undiscounted cash flow analysis for its long-lived assets held-for-use, exclusive of the Company's Pacific Aurora assets held-for-sale, as of December 31, 2019 and 2018, resulting in amounts in excess of carrying values.

Deferred Financing Costs – Deferred financing costs are costs incurred to obtain debt financing, including all related fees, and are amortized as interest expense over the term of the related financing using the straight-line method, which approximates the interest rate method. Amortization of deferred financing costs was approximately $511,000 and $900,000 for the years ended December 31, 2019 and 2018, respectively. Unamortized deferred financing costs were approximately $2,153,000 and $1,377,000 as of December 31, 2019 and 2018, respectively, and are recorded net of long-term debt in the consolidated balance sheets.

Provision for Income Taxes – Income taxes are accounted for under the asset and liability approach, where deferred tax assets and liabilities are determined based on differences between financial reporting and tax basis of assets and liabilities, and are measured using enacted tax rates and laws that are expected to be in effect when the differences reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amounts expected to be realized.

The Company accounts for uncertainty in income taxes using a two-step approach to recognizing and measuring uncertain tax positions. The first step is to evaluate the tax position for recognition by determining whether it is more likely than not that the position will be sustained on audit, including resolution of related appeals or litigation processes, if any. The second step is to measure the tax benefit as the largest amount which is more than 50% likely of being realized upon ultimate settlement. An uncertain tax position is considered effectively settled on completion of an examination by a taxing authority if certain other conditions are satisfied. Should the Company incur interest and penalties relating to tax uncertainties, such amounts would be classified as a component of interest expense and other income (expense), net, respectively. Deferred tax assets and liabilities are classified as noncurrent in the Company's consolidated balance sheets.

The Company files a consolidated federal income tax return. This return includes all wholly-owned subsidiaries as well as the Company's pro-rata share of taxable income from pass-through entities in which the Company owns less than 100%. State tax returns are filed on a consolidated, combined or separate basis depending on the applicable laws relating to the Company and its subsidiaries.

Income (Loss) Per Share – Basic income (loss) per share is computed on the basis of the weighted-average number of shares of common stock outstanding during the period. Preferred dividends are deducted from net income (loss) attributed to Pacific Ethanol, Inc. and are considered in the calculation of income (loss) available to common stockholders in computing basic income (loss) per share. Common stock equivalents to preferred stock are considered participating securities and are also included in this calculation when dilutive.

The following tables compute basic and diluted earnings per share (in thousands, except per share data):

	Year Ended December 31, 2019		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Pacific Ethanol	$ (88,949)		
Less: Preferred stock dividends	(1,265)		
Basic and Diluted loss per share:			
Loss available to common stockholders	$ (90,214)	47,384	$ (1.90)

	Year Ended December 31, 2018		
	Loss Numerator	Shares Denominator	Per-Share Amount
Net loss attributed to Pacific Ethanol	$ (60,273)		
Less: Preferred stock dividends	(1,265)		
Basic and Diluted loss per share:			
Loss available to common stockholders	$ (61,538)	43,376	$ (1.42)

There were an aggregate 635,000 potentially dilutive shares from convertible securities outstanding as of December 31, 2019 and 2018. These convertible securities were not considered in calculating diluted income (loss) per common share for the years ended December 31, 2019 and 2018 as their effect would be anti-dilutive.

Financial Instruments – The carrying values of cash and cash equivalents, accounts receivable, derivative assets, accounts payable, accrued liabilities and derivative liabilities are reasonable estimates of their fair values because of the short maturity of these items. The carrying value of the Company's senior secured notes are recorded at fair value and are considered Level 2 fair value measurements. The Company believes the carrying value of its other long-term debt and assessment financing is not considered materially different than fair value because the interest rates on these instruments are variable, and are considered Level 2 fair value measurements.

Employment-related Benefits – Employment-related benefits associated with pensions and postretirement health care are expensed based on actuarial analysis. The recognition of expense is affected by estimates made by management, such as discount rates used to value certain liabilities, investment rates of return on plan assets, increases in future wage amounts and future health care costs. Discount rates are determined based on a spot yield curve that includes bonds with maturities that match expected benefit payments under the plan.

Estimates and Assumptions – The preparation of the consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates are required as part of determining the allowance for doubtful accounts, net realizable value of inventory, estimated lives of property and equipment, long-lived asset impairments, valuation allowances on deferred income taxes and the potential outcome of future tax consequences of events recognized in the Company's financial statements or tax returns, and the valuation of assets acquired and liabilities assumed as a result of business combinations. Actual results and outcomes may materially differ from management's estimates and assumptions.

Subsequent Events – Management evaluates, as of each reporting period, events or transactions that occur after the balance sheet date through the date that the financial statements are issued for either disclosure or adjustment to the consolidated financial results.

Reclassifications – Certain prior year amounts have been reclassified to conform to the current presentation. Such reclassifications had no effect on the consolidated net income (loss), working capital or stockholders' equity reported in the consolidated statements of operations and consolidated balance sheets.

2. PACIFIC ETHANOL PLANTS.

Pacific Aurora

On December 15, 2016, PE Central closed on an agreement with ACEC under which (i) PE Central contributed to Pacific Aurora 100% of the equity interests of its wholly-owned subsidiaries, Pacific Ethanol Aurora East, LLC ("AE") and Pacific Ethanol Aurora West, LLC ("AW"), which owned the Company's Aurora East and Aurora West ethanol plants, respectively, and (ii) ACEC contributed to Pacific Aurora its grain elevator adjacent to the Aurora East and Aurora West properties and related grain handling assets, including the outer rail loop and the real property on which they are located. Following the closing of these transactions, PE Central owned 73.93% of Pacific Aurora and ACEC owned 26.07% of Pacific Aurora.

The Company has consolidated 100% of the results of Pacific Aurora and recorded the amount attributed to ACEC as noncontrolling interests under the voting rights model. Since the Company had control of AE and AW prior to forming Pacific Aurora, there was no gain or loss recorded on the contribution and ultimate sale of a portion of the Company's interests in Pacific Aurora. A noncontrolling interest was recognized to reflect ACEC's proportional ownership interest multiplied by the book value of Pacific Aurora's net assets. As a result, the Company recorded $16.2 million as additional paid-in capital attributed to the difference between Pacific Aurora's book value and the contribution and sale.

Held-for-Sale Classification

On December 19, 2019, PE Central entered into a term sheet covering the proposed sale of its 73.93% ownership interest in Pacific Aurora to ACEC for $52.8 million, and as a result, the Company determined that as of December 31, 2019, the long-lived assets of Pacific Aurora should be classified as held-for-sale. The Company's analysis resulted in an impairment of $29.3 million in its production segment.

The Company has the following assets and liabilities of Pacific Aurora that will be derecognized upon sale of PE Central's interest in Pacific Aurora and as to which the Company will no longer consolidate any portion of Pacific Aurora:

Cash and equivalents	$	103
Inventories		2,079
Other current assets		341
Total current assets		2,523
Property and equipment		70,400
Other assets		13,341
Total assets held-for-sale		86,264
Less: noncurrent assets		(16,500)
Total assets held-for-sale, current portion	$	69,764
Accounts payable and accrued expenses	$	20,711
Other current liabilities		5,497
Total current liabilities		26,208
Other non-current liabilities		8,205
Total liabilities held-for-sale	$	34,413

In addition to the above accounts, upon the sale, the Company will no longer have noncontrolling interests on its balance sheet and no longer record income (loss) of noncontrolling interests for the future periods.

For the years ended December 31, 2019 and 2018, Pacific Aurora contributed $163.5 million and $233.6 million in net sales, $43.4 million and $24.3 million in pre-tax loss, and $12.3 million and $7.7 million in net loss attributed to noncontrolling interests, respectively.

On February 28, 2020, the Company entered into a definitive membership interest purchase agreement with ACEC for this sale and expects to close the sale during the second quarter of 2020. Upon close, the Company expects to receive total consideration of $52.8 million, subject to certain working capital adjustments, payable in cash and $16.5 million in ACEC promissory notes. The Company expects the promissory notes to be noncurrent upon the sale, and as such has shown the amount as assets held-for-sale noncurrent.

3. INTERCOMPANY AGREEMENTS.

The Company, directly or through one of its subsidiaries, has entered into the following management and marketing agreements:

Affiliate Management Agreement – Pacific Ethanol entered into an Affiliate Management Agreement ("AMA") with its operating subsidiaries, namely Kinergy, PAP, the Pacific Ethanol West Plants and the Pacific Ethanol Central Plants, effective July 1, 2015, with Pacific Aurora, effective December 15, 2016, and with ICP, effective July 1, 2017, under which Pacific Ethanol agreed to provide operational and administrative and staff support services. These services generally include, but are not limited to, administering the subsidiaries' compliance with their credit agreements and performing billing, collection, record keeping and other administrative and ministerial tasks. Pacific Ethanol agreed to supply all labor and personnel required to perform its services under the AMA, including the labor and personnel required to operate and maintain the production facilities and marketing activities. These services are billed at a predetermined amount per subsidiary each month plus out of pocket costs such as employee wages and benefits.

The AMAs have an initial term of one year and automatic successive one year renewal periods. Pacific Ethanol may terminate the AMA, and any subsidiary may terminate the AMA, at any time by providing at least 90 days prior notice of such termination.

Pacific Ethanol recorded revenues of approximately $12,682,000 and $12,048,000 related to the AMAs in place for the years ended December 31, 2019 and 2018, respectively. These amounts have been eliminated upon consolidation.

Ethanol Marketing Agreements – Kinergy entered into separate ethanol marketing agreements with each of the Company's nine plants, which granted it the exclusive right to purchase, market and sell the ethanol produced at those facilities. Under the terms of the ethanol marketing agreements, within ten days after delivering ethanol to Kinergy, an amount is paid to Kinergy equal to (i) the estimated purchase price payable by the third-party purchaser of the ethanol, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated incentive fee payable to Kinergy, which equals 1% of the aggregate third-party purchase price, provided that the marketing fee shall not be less than $0.015 per gallon and not more than $0.0225 per gallon. Each of the ethanol marketing agreements had an initial term of one year and successive one year renewal periods at the option of the individual plant.

Kinergy recorded revenues of approximately $7,900,800 and $8,773,000 related to the ethanol marketing agreements for the years ended December 31, 2019 and 2018, respectively. These amounts have been eliminated upon consolidation.

Corn Procurement and Handling Agreements – PAP entered into separate corn procurement and handling agreements with each of the Company's plants, with the exception of the Pacific Aurora facilities, which terminated its agreements with PAP on December 15, 2016. Under the terms of the corn procurement and handling agreements, each facility appointed PAP as its exclusive agent to solicit, negotiate, enter into and administer, on its behalf, corn supply arrangements to procure the corn necessary to operate its facility. PAP also provides grain handling services including, but not limited to, receiving, unloading and conveying corn into the facility's storage and, in the case of whole corn delivered, processing and hammering the whole corn.

Under these agreements, PAP receives a fee of $0.045 per bushel of corn delivered to each facility as consideration for its procurement and handling services, payable monthly. Effective December 15, 2016, this fee is $0.03 per bushel of corn. Each corn procurement and handling agreement had an initial term of one year and successive one year renewal periods at the option of the individual plant. PAP recorded revenues of approximately $4,288,000 and $4,531,000 related to the corn procurement and handling agreements for the years ended December 31, 2019 and 2018, respectively. These amounts have been eliminated upon consolidation.

Effective December 15, 2016, each Pacific Aurora facility entered into a new grain procurement agreement with ACEC. Under this agreement, ACEC receives a fee of $0.03 per bushel of corn delivered to each facility as consideration for its procurement and handling services, payable monthly. The grain procurement agreement has an initial term of one year and successive one year renewal periods at the option of the individual plant. Pacific Aurora recorded expenses of approximately $1,103,000 and $1,381,000 for the years ended December 31, 2019 and 2018, respectively. These amounts have not been eliminated upon consolidation as they are with a related but unconsolidated third-party.

Distillers Grains Marketing Agreements – PAP entered into separate distillers grains marketing agreements with each of the Company's plants, which grant PAP the exclusive right to market, purchase and sell the various co-products produced at each facility. Under the terms of the distillers grains marketing agreements, within ten days after a plant delivers co-products to PAP, the plant is paid an amount equal to (i) the estimated purchase price payable by the third-party purchaser of the co-products, minus (ii) the estimated amount of transportation costs to be incurred, minus (iii) the estimated amount of fees and taxes payable to governmental authorities in connection with the tonnage of the co-products produced or marketed, minus (iv) the estimated incentive fee payable to the Company, which equals (a) 5% of the aggregate third-party purchase price for wet corn gluten feed, wet distillers grains, corn condensed distillers solubles and distillers grains with solubles, or (b) 1% of the aggregate third-party purchase price for corn gluten meal, dry corn gluten feed, dry distillers grains, corn germ and corn oil. Each distillers grains marketing agreement had an initial term of one year and successive one year renewal periods at the option of the individual plant.

PAP recorded revenues of approximately $6,029,000 and $6,572,000 related to the distillers grains marketing agreements for the years ended December 31, 2019 and 2018, respectively. These amounts have been eliminated upon consolidation.

4. SEGMENTS.

The Company reports its financial and operating performance in two segments: (1) ethanol production, which includes the production and sale of ethanol, specialty alcohols and co-products, with all of the Company's production facilities aggregated, and (2) marketing and distribution, which includes marketing and merchant trading for Company-produced ethanol, specialty alcohols and co-products, and third-party ethanol.

Income before provision for income taxes includes management fees charged by Pacific Ethanol to the segment. The production segment incurred $10,522,000 and $10,248,000 in management fees for the years ended December 31, 2019 and 2018, respectively. The marketing and distribution segment incurred $2,160,000 in management fees for each of the years ended December 31, 2019 and 2018. Corporate activities include selling, general and administrative expenses, consisting primarily of corporate employee compensation, professional fees and overhead costs not directly related to a specific operating segment.

During the normal course of business, the segments do business with each other. The preponderance of this activity occurs when the Company's marketing segment markets ethanol produced by the production segment for a marketing fee, as discussed in Note 3. These intersegment activities are considered arms'-length transactions. Consequently, although these transactions impact segment performance, they do not impact the Company's consolidated results since all revenues and corresponding costs are eliminated in consolidation.

Capital expenditures are substantially all incurred at the Company's production segment.

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

	Years Ended December 31,	
Net Sales	**2019**	**2018**
Production, recorded as gross:		
Ethanol/alcohol sales	$ 800,262	$ 859,815
Co-product sales	268,996	296,686
Intersegment sales	1,619	1,995
Total production sales	1,070,877	1,158,496
Marketing and distribution:		
Ethanol/alcohol sales, gross	$ 353,792	$ 357,011
Ethanol/alcohol sales, net	1,831	1,859
Intersegment sales	7,901	8,773
Total marketing and distribution sales	363,524	367,643
Intersegment eliminations	(9,520)	(10,768)
Net sales as reported	$ 1,424,881	$ 1,515,371
Cost of goods sold:		
Production	$ 1,095,742	$ 1,197,507
Marketing and distribution	349,906	343,991
Intersegment eliminations	(10,829)	(10,963)
Cost of goods sold as reported	$ 1,434,819	$ 1,530,535
Income (loss) before benefit for income taxes:		
Production	$ (93,367)	$ (77,833)
Marketing and distribution	7,442	18,191
Corporate activities	(15,357)	(8,856)
	$ (101,282)	$ (68,498)
Depreciation:		
Production	$ 47,206	$ 40,099
Corporate activities	703	750
	$ 47,909	$ 40,849
Interest expense:		
Production	$ 7,569	$ 7,116
Marketing and distribution	3,053	1,388
Corporate activities	9,584	8,628
	$ 20,206	$ 17,132

The following table sets forth the Company’s total assets by operating segment (in thousands):

	December 31, 2019	December 31, 2018
Total assets:		
Production	$ 492,060	$ 532,790
Marketing and distribution	106,863	112,984
Corporate assets	13,572	14,117
	$ 612,495	$ 659,891

5. PROPERTY AND EQUIPMENT.

Property and equipment consisted of the following (in thousands):

	December 31,	
	2019	2018
Facilities and plant equipment	$ 495,513	$ 621,909
Land	7,219	8,970
Other equipment, vehicles and furniture	11,229	11,812
Construction in progress	15,793	30,312
	529,754	673,003
Accumulated depreciation	(197,228)	(190,346)
	$ 332,526	$ 482,657

Depreciation expense was $40,931,000 and $40,849,000 for the years ended December 31, 2019 and 2018, respectively.

For the year ended December 31, 2019 and 2018, the Company capitalized interest of $563,000 and $1,170,000, respectively, related to its capital investment activities.

6. INTANGIBLE ASSET.

The Company recorded a tradename valued at $2,678,000 in 2006 as part of its acquisition of Kinergy. The Company determined that the Kinergy tradename has an indefinite life and, therefore, rather than being amortized, will be tested annually for impairment. The Company did not record any impairment of the Kinergy tradename for the years ended December 31, 2019 and 2018.

7. DERIVATIVES.

The business and activities of the Company expose it to a variety of market risks, including risks related to changes in commodity prices. The Company monitors and manages these financial exposures as an integral part of its risk management program. This program recognizes the unpredictability of financial markets and seeks to reduce the potentially adverse effects that market volatility could have on operating results.

Commodity Risk – Cash Flow Hedges – The Company uses derivative instruments to protect cash flows from fluctuations caused by volatility in commodity prices for periods of up to twelve months in order to protect gross profit margins from potentially adverse effects of market and price volatility on ethanol sale and purchase commitments where the prices are set at a future date and/or if the contracts specify a floating or index-based price for ethanol. In addition, the Company hedges anticipated sales of ethanol to minimize its exposure to the potentially adverse effects of price volatility. These derivatives may be designated and documented as cash flow hedges and effectiveness is evaluated by assessing the probability of the anticipated transactions and regressing commodity futures prices against the Company's purchase and sales prices. Ineffectiveness, which is defined as the degree to which the derivative does not offset the underlying exposure, is recognized immediately in cost of goods sold. For the years ended December 31, 2019 and 2018, the Company did not designate any of its derivatives as cash flow hedges.

Commodity Risk – Non-Designated Hedges – The Company uses derivative instruments to lock in prices for certain amounts of corn and ethanol by entering into exchange-traded forward contracts for those commodities. These derivatives are not designated for hedge accounting treatment. The changes in fair value of these contracts are recorded on the balance sheet and recognized immediately in cost of goods sold. The Company recognized net gains of $555,000 and net losses of $6,714,000 as the change in the fair value of these contracts for the years ended December 31, 2019 and 2018, respectively.

Non Designated Derivative Instruments – The classification and amounts of the Company's derivatives not designated as hedging instruments, and related cash collateral balances, are as follows (in thousands):

	As of December 31, 2019			
	Assets		Liabilities	
Type of Instrument	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Other current assets	$ 615		
Commodity contracts	Derivative assets	$ 2,438	Derivative liabilities	$ 1,860

	As of December 31, 2018			
	Assets		Liabilities	
Type of Instrument	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Cash collateral balance	Other current assets	$ 8,479		
Commodity contracts	Derivative assets	$ 1,765	Derivative liabilities	$ 6,309

The above amounts represent the gross balances of the contracts, however, the Company does have a right of offset with each of its derivative brokers.

The classification and amounts of the Company's recognized gains (losses) for its derivatives not designated as hedging instruments are as follows (in thousands):

		Realized Losses For the Years Ended December 31,	
Type of Instrument	Statements of Operations Location	2019	2018
Commodity contracts	Cost of goods sold	$ (4,568)	$ (3,479)
		$ (4,568)	$ (3,479)

		Unrealized Gains (Losses) For the Years Ended December 31,	
Type of Instrument	Statements of Operations Location	2019	2018
Commodity contracts	Cost of goods sold	$ 5,123	$ (3,235)
		$ 5,123	$ (3,235)

8. DEBT.

Long-term borrowings are summarized as follows (in thousands):

	December 31, 2019	December 31, 2018
Kinergy line of credit	$ 78,338	$ 57,057
Pekin term loan	39,500	43,000
Pekin revolving loan	32,000	32,000
ICP term loan	12,000	16,500
ICP revolving loan	18,000	18,000
Parent notes payable	65,649	66,948
	245,487	233,505
Less unamortized debt premium (discount)	461	(690)
Less unamortized debt financing costs	(2,153)	(1,377)
Less short-term portion	(63,000)	(146,671)
Long-term debt	$ 180,795	$ 84,767

Kinergy Line of Credit – Kinergy has an operating line of credit for an aggregate amount of up to $100,000,000. The line of credit matures on August 2, 2022. The credit facility is based on Kinergy's eligible accounts receivable and inventory levels, subject to certain concentration reserves. The credit facility is subject to certain other sublimits, including inventory loan limits. Interest accrues under the line of credit at a rate equal to (i) the three-month London Interbank Offered Rate ("LIBOR"), plus (ii) a specified applicable margin ranging between 1.50% and 2.00%. The applicable margin was 1.50%, for a total rate of 3.90% at December 31, 2019. The credit facility's monthly unused line fee is an annual rate equal to 0.25% to 0.375% depending on the average daily principal balance during the immediately preceding month. Payments that may be made by Kinergy to the Company as reimbursement for management and other services provided by the Company to Kinergy are limited under the terms of the credit facility to $1,500,000 per fiscal quarter. The credit facility also includes the accounts receivable of PAP as additional collateral. Payments that may be made by PAP to the Company as reimbursement for management and other services provided by the Company to PAP are limited under the terms of the credit facility to $500,000 per fiscal quarter.

If Kinergy and PAP's monthly excess borrowing availability falls below certain thresholds, they are collectively required to maintain a fixed-charge coverage ratio (calculated as a twelve-month rolling EBITDA divided by the sum of interest expense, capital expenditures, principal payments of indebtedness, indebtedness from capital leases and taxes paid during such twelve-month rolling period) of at least 2.0 and are prohibited from incurring certain additional indebtedness (other than specific intercompany indebtedness).

Kinergy and PAP's obligations under the credit facility are secured by a first-priority security interest in all of their assets in favor of the lender. Pacific Ethanol has guaranteed all of Kinergy's obligations under the line of credit. As of December 31, 2019, Kinergy had no unused availability under the credit facility.

Pekin Credit Facilities – On December 15, 2016, the Company's wholly-owned subsidiary, Pacific Ethanol Pekin, LLC ("Pekin"), entered into a Credit Agreement (the "Pekin Credit Agreement") with 1st Farm Credit Services, PCA and CoBank, ACB ("CoBank"). On December 15, 2016, under the terms of the Pekin Credit Agreement, Pekin borrowed from 1st Farm Credit Services $64.0 million under a term loan facility that matures on August 20, 2021 (the "Pekin Term Loan") and $32.0 million under a revolving term loan facility that matures on February 1, 2022 (the "Pekin Revolving Loan" and, together with the Pekin Term Loan, the "Pekin Credit Facility"). The Pekin Credit Facility is secured by a first-priority security interest in all of Pekin's assets under the terms of a Security Agreement, dated December 15, 2016, by and between Pekin and CoBank (the "Pekin Security Agreement"). Interest accrues under the Pekin Credit Facility at an annual rate equal to the 30-day LIBOR plus 3.75%, payable monthly. Pekin is required to make quarterly principal payments in the amount of $3.5 million on the Pekin Term Loan beginning on May 20, 2017 and a principal payment of $4.5 million at maturity on August 20, 2021. Pekin is required to pay a monthly fee on any unused portion of the Pekin Revolving Loan at a rate of 0.75% per annum. Prepayment of the Pekin Credit Facility is subject to a prepayment penalty. Under the terms of the Pekin Credit Agreement, Pekin is required to maintain not less than $20.0 million in working capital and an annual debt coverage ratio of not less than 1.25 to 1.0. The Pekin Credit Agreement contains a variety of affirmative covenants, negative covenants and events of default.

On August 7, 2017, Pekin amended its term and revolving credit facilities by agreeing to increase the interest rate under the facilities by 25 basis points to an annual rate equal to the 30-day LIBOR plus 4.00%. Pekin and its lender also agreed that Pekin is required to maintain working capital of not less than $17.5 million from August 31, 2017 through December 31, 2017 and working capital of not less than $20.0 million from January 1, 2018 and continuing at all times thereafter. In addition, the required Debt Service Coverage Ratio was reduced to 0.15 to 1.00 for the fiscal year ending December 31, 2017. For the month ended January 31, 2018, Pekin was not in compliance with its working capital requirement due to larger than anticipated repair and maintenance related expenses to replace faulty equipment. Pekin received a waiver from its lender for this noncompliance. Further, the lender decreased Pekin's working capital covenant requirement to $13.0 million for the month ended February 28, 2018, excluding the $3.5 million principal payment due in May 2018 from the calculation.

On March 30, 2018, Pekin amended its term loan facility by reducing the amount of working capital it is required to maintain to not less than $13.0 million from March 31, 2018 through November 30, 2018 and not less than $16.0 million from December 1, 2018 and continuing at all times thereafter. In addition, a principal payment in the amount of $3.5 million due for May 2018 was deferred until the maturity date of the term loan.

At December 31, 2018 and January 31, 2019, Pekin experienced certain covenant violations under its term and revolving credit facilities. In February 2019, Pekin reached an agreement with its lender to forbear until March 11, 2019 and to defer a $3.5 million principal payment until that date.

On March 21, 2019, Pekin amended its term and revolving credit facilities by agreeing to increase the interest rate under the facilities by 125 basis points to an annual rate equal to the 30-day LIBOR plus 5.00%. Pekin and its lender also agreed that it is required to maintain working capital of not less than $15.0 million from March 21, 2019 through July 15, 2019 and working capital of not less than $30.0 million from July 15, 2019 and continuing at all times thereafter. On July 15, 2019, Pekin and its lender agreed to a further amendment extending the aforementioned July 15, 2019 dates to November 15, 2019. On August 6, 2019, Pekin paid its $3,500,000 principal payment scheduled for August 20, 2019.

Under these amendments, the lender agreed to temporarily waive financial covenant violations, working capital maintenance violations and intercompany accounts receivable collections violations that occurred with respect to the credit agreement. The lenders also agreed to defer all scheduled principal payments, including further deferral of principal payments in the amount of $3.5 million each due on February 20, 2019 and May 20, 2019.

The waivers and principal deferral expired on November 15, 2019, at which time the waivers were to become permanent if PE Central made a contribution to Pekin in an amount equal to $30.0 million, minus the then-existing amount of Pekin's working capital, plus the amount of any accounts receivable owed by PE Central to Pekin, plus $12.0 million, or the Parent Contribution Amount. In addition, if the Parent Contribution Amount was timely received, the lender agreed to waive Pekin's debt service coverage ratio financial covenant for the year ended December 31, 2019. If the Parent Contribution Amount was not timely made, then the temporary waivers would automatically expire.

Pekin was also required to pay by November 15, 2019 the aggregate amount of $10.5 million representing all deferred and unpaid scheduled principal payments and all additional scheduled principal payments for the remainder of 2019.

On November 15, 2019, Pekin amended its term and revolving credit facilities by agreeing to extend the temporary waiver of violations of financial and other covenants relating to working capital maintenance, intercompany accounts receivable collections, financial projections, cash flow forecasts, and sales reports. The lender also agreed to extend the deferral of all scheduled principal payments payable on February 20, 2019, May 20, 2019 and November 15, 2019 to December 15, 2019. The amendment also made a payment default of $250,000 or more under Kinergy's credit facility or the senior secured notes, or any acceleration of indebtedness, or any termination of any commitment to lend or termination of any forbearance or other accommodation, an event of default.

The waivers and principal deferral expired on December 15, 2019. On December 15, 2019, the waivers were to become permanent if PE Central made a contribution to Pekin in an amount equal to the Parent Contribution Amount. In addition, if the Parent Contribution Amount was timely received, the lender agreed to waive Pekin's debt service coverage ratio financial covenant for the year ended December 31, 2019. If the Parent Contribution Amount was not timely made, then the temporary waivers would automatically expire.

On December 16, 2019, Pekin amended its term and revolving credit facilities by agreeing to extend the deferral of all scheduled principal payments payable on February 20, 2019, May 20, 2019 and November 20, 2019 to December 20, 2019.

On December 20, 2019, Pekin's lender agreed to temporarily waive working capital covenant violations, debt service coverage ratio covenant violations, reporting covenant violations and certain other covenant violations that occurred under the Pekin credit agreement, and replaced those covenants with new EBITDA and production volume covenants. Pekin's lender also agreed to defer all scheduled principal installments payable under the term note on February 20, 2019, May 20, 2019 and November 20, 2019 until August 20, 2021. In addition, Pekin was not required to make its prior scheduled quarterly principal payments of $3.5 million until September 30, 2020, at which time $3.5 million will be due, with the same amount due quarterly thereafter until maturity.

Under the amendment, Pekin, collectively with ICP, agreed to pay the lenders an aggregate of $40.0 million on or before September 30, 2020 to reduce the outstanding balances of the term loans under the Pekin credit agreement and the ICP credit agreement. The $40.0 million is an aggregate amount payable to ICP's lender and Pekin's lender, and allocated between them. The $40.0 million is to be funded through asset sales, proceeds of any award, judgment or settlement of litigation, or, at the Company's election, from funds contributed to Pekin by the Company. Following receipt by the lenders under the ICP credit agreement and the Pekin credit agreement, collectively, of $40.0 million in full, and once any loans corresponding to the particular midwestern asset sold are repaid, additional proceeds from the sale of any of the Company's midwestern plant assets will generally be allocated 33/34/33% among ICP's lender and Pekin's lender, collectively, the selling security holders, and the Company, respectively. Proceeds from the sale of any of the Company's western assets will generally be allocated 33/34/33% among Pekin's lender and ICP's lender, collectively, the selling security holders, and the Company, respectively.

Pekin's lender also imposed cross-default terms such that, until Pekin's lender and ICP's lender receive $40.0 million, a default under the ICP credit agreement would constitute a default under the Pekin credit agreement. Pekin agreed to provide additional collateral security to support its obligations under the Pekin credit agreement, including second lien positions in the Company's western plants, which will terminate and be released upon Pekin's lender's receipt of $40.0 million.

On December 29, 2019, Pekin agreed to amend the secured obligations under its security agreement to include Pekin's unconditional guarantee of the payment of up to an aggregate $40.0 million to satisfy the obligations of ICP to ICP's lender under the ICP credit agreement.

On March 20, 2020, Pekin and its lender agreed to defer $1.0 million in aggregate interest payments due March 20, 2020 and April 20, 2020 until May 20, 2020. On that same date, the Company granted to the lender a security interest in all of the Company's equity interests in PE Op Co., which indirectly owns the Company's plants located on the West Coast. The Company and certain subsidiaries also entered into intercreditor agreements with the Pekin and ICP lenders, and the agent for the Company's senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

ICP Credit Facilities — On September 15, 2017, ICP, Compeer Financial, PCA ("Compeer"), and CoBank as agent, entered into a Credit Agreement ("ICP Credit Agreement"). Under the ICP Credit Agreement, Compeer agreed to extend to ICP a term loan in the amount of $24,000,000 and a revolving loan in an amount of up to $18,000,000. ICP used the proceeds of the term loan to refinance the Seller Notes. ICP is to make amortizing principal payments in sixteen equal consecutive quarterly installments of $1,500,000 each until September 20, 2021, at which time the entire remaining balance is due and payable. Interest on the unpaid principal amount of the term loan accrues at a rate equal to 3.75% plus the one-month LIBOR index rate. ICP used the proceeds of the revolving term facility to refinance the Seller Notes and for ICP's working capital needs. The revolving loan matures on September 1, 2022. The revolving loan gives ICP the right, in ICP's sole discretion, to permanently reduce from time to time the revolving term commitment in increments of $500,000 by giving CoBank ten days prior written notice. The revolving loan requires ICP to pay CoBank a nonrefundable commitment fee equal to 0.75% per annum multiplied by the average daily positive difference between the amounts of (i) the revolving term commitment, minus (ii) the aggregate principal amount of all loans outstanding under the revolving loan. Interest on the unpaid principal amount of the loan accrues, pursuant to ICP's election of the LIBOR Index Option, at a rate equal to 3.75% plus the one-month LIBOR index rate. Under the terms of the credit facilities, ICP is required to maintain working capital of not less than $8.0 million. In addition, ICP is required to maintain an annual debt service coverage ratio of not less than 1.50 to 1.00 beginning for the year ending December 31, 2018.

As of September 30, 2019, ICP had no additional borrowing availability under its revolving credit facility. As of September 30, 2019, ICP did not meet its minimum working capital requirement, however, ICP's lender subsequently waived the minimum working capital deficiency.

On December 20, 2019, ICP amended its term and revolving credit facilities under which ICP's lender granted waivers for certain ICP covenant defaults and replaced those covenants with new EBITDA and production volume covenants. ICP's lender also imposed cross-default terms such that, until ICP's lender and Pekin's lender receive an aggregate of $40.0 million, a default under the Pekin credit agreement would constitute a default under the ICP credit agreement. ICP agreed to provide additional collateral security to support its obligations under the ICP credit agreement, including second lien positions in the Company's western plants, which will terminate and be released upon ICP's lender's receipt of an aggregate of $40.0 million. ICP's prior scheduled principal payment of $1.5 million, originally due on December 20, 2019, was deferred to the maturity date of September 20, 2021. Scheduled quarterly principal payments of $1.5 million will resume March 20, 2020.

Under the amendment, ICP, collectively with Pekin, agreed to pay the lenders an aggregate of $40.0 million on or before September 30, 2020 to reduce the outstanding balances of the term loans under the ICP credit agreement and the Pekin credit agreement. The $40.0 million is an aggregate amount payable to ICP's lender and Pekin's lender, and allocated between them. The $40.0 million is to be funded through asset sales, proceeds of any award, judgment or settlement of litigation, or, at the Company's election, from funds contributed to ICP by the Company. Following receipt by the lenders under the ICP credit agreement and the Pekin credit agreement, collectively, of $40.0 million in full, and once any loans corresponding to the particular midwestern asset sold are repaid, any additional proceeds from a sale of the Company's midwestern plant assets will generally be allocated 33/34/33% among ICP's lender and Pekin's lender, collectively, the selling security holders, and the Company, respectively. Proceeds from the sale of any of the Company's western assets will generally be allocated 33/34/33% among Pekin's lender and ICP's lender, collectively, the selling security holders, and the Company, respectively.

On December 29, 2019, ICP agreed to amend the secured obligations under its security agreement to include ICP's unconditional guarantee of the payment of up to an aggregate $40.0 million to satisfy the obligations of Pekin to Pekin's lender under the Pekin credit agreement.

As of December 31, 2019 and the filing of this report, the Company believes ICP is in compliance with its working capital requirement.

On March 20, 2020, ICP and its lender agreed to defer a $1.5 million principal payment due March 20, 2020 and $0.3 million in aggregate interest payments due March 20, 2020 and April 20, 2020 until May 20, 2020. On that same date, the Company granted to the lender a security interest in all of the Company's equity interests in PE Op Co. The Company and certain of its subsidiaries also entered into intercreditor agreements with the Pekin and ICP lenders, and the agent for the Company's senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

Pacific Ethanol, Inc. Notes Payable – On December 12, 2016, Pacific Ethanol entered into a Note Purchase Agreement (the "Note Purchase Agreement") with five accredited investors. On December 15, 2016, under the terms of the Note Purchase Agreement, Pacific Ethanol sold $55.0 million in aggregate principal amount of its senior secured notes to the Investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the Notes sold. On June 26, 2017, the Company entered into a second Note Purchase Agreement with five accredited investors. On June 30, 2017, under the terms of the second Note Purchase Agreement, the Company sold an additional $13.9 million in aggregate principal amount of its senior secured notes to the investors in a private offering for aggregate gross proceeds of 97% of the principal amount of the notes sold (collectively with the notes sold on December 15, 2016, the "Notes"), for a total of $68.9 million in aggregate principal amount of Notes.

The Notes had an original maturity date of December 15, 2019 (the "Maturity Date"). Interest on the Notes accrued at a rate equal to (i) the greater of 1% and the three-month LIBOR, plus 7.0% from the closing through December 14, 2017, (ii) the greater of 1% and LIBOR, plus 9% between December 15, 2017 and December 14, 2018, and (iii) the greater of 1% and LIBOR plus 11% between December 15, 2018 and the Maturity Date. The interest rate would increase by an additional 2% per annum above the interest rate otherwise applicable upon the occurrence and during the continuance of an event of default until such event of default has been cured. Interest was payable in cash on the 15th calendar day of each March, June, September and December. Pacific Ethanol is required to pay all outstanding principal and any accrued and unpaid interest on the Notes on the Maturity Date. Pacific Ethanol may, at its option, prepay the outstanding principal amount of the Notes at any time without premium or penalty. The Notes contain a variety of events of default. The payments due under the Notes rank senior to all other indebtedness of Pacific Ethanol, other than permitted senior indebtedness. The Notes contain a variety of obligations on the part of Pacific Ethanol not to engage in certain activities, including that (i) Pacific Ethanol and certain of its subsidiaries will not incur other indebtedness, except for certain permitted indebtedness, (ii) Pacific Ethanol and certain of its subsidiaries will not redeem, repurchase or pay any dividend or distribution on their respective capital stock without the prior consent of the holders of the Notes holding 66-2/3% of the aggregate principal amount of the Notes, other than certain permitted distributions, (iii) Pacific Ethanol and certain of its subsidiaries will not sell, lease, assign, transfer or otherwise dispose of any assets of Pacific Ethanol or any such subsidiary, except for certain permitted dispositions (including the sales of inventory or receivables in the ordinary course of business), and (iv) Pacific Ethanol and certain of its subsidiaries will not issue any capital stock or membership interests for any purpose other than to pay down a portion of all of the amounts owed under the Notes and in connection with Pacific Ethanol's stock incentive plans. The Notes are secured by a first-priority security interest in the equity interest held by Pacific Ethanol in its wholly-owned subsidiary, PE Op. Co., which indirectly owns the Company's plants located on the West Coast.

On December 16, 2019, Pacific Ethanol amended the notes to extend the maturity date from December 15, 2019 to December 23, 2019 and amended the interest rate from the greater of 1% and the three-month LIBOR, plus 11% between December 15, 2018 through December 14, 2019, to 15% commencing on September 15, 2019. Under the amendment, Pacific Ethanol also agreed to pay the December 15, 2019 interest payment 50% in cash and 50% in-kind through the issuance of an additional note in the principal amount equal thereto.

On December 22, 2019, Pacific Ethanol amended and restated the notes which extended the maturity date from December 23, 2019 to December 15, 2021. Interest on the Notes accrues at a rate of 15% per annum, payable quarterly. In addition, the Company issued 5.5 million shares of its common stock and 5.5 million warrants to the noteholders.

The Company evaluated the above amendment and determined that debt extinguishment accounting was appropriate. Therefore, the Company recorded a loss on debt extinguishment of $6,517,000, comprised of the fair value of common stock issued, fair value of warrants issued and fair value of the carrying value of the debt.

On March 20, 2020, the Company and the noteholders agreed to defer a $2.5 million aggregate interest payment due March 15, 2020 until May 20, 2020. On that same date, ICP granted a junior lien in certain of its personal property to the noteholders, and PE Central granted a junior lien in certain of its personal property to the noteholders. PE Central also pledged its equity interests in Pacific Aurora, Pekin and ICP in favor of the noteholders. In addition, PE Op Co. and Pacific Ethanol West, LLC, which directly owns the Company's plants located on the West Coast, granted a security interest in certain of their personal property to the noteholders. The Company and certain of its subsidiaries also entered into intercreditor agreements with the Pekin and ICP lenders, and the agent for the Company's senior secured noteholders, to address issues of priority and the allocation of proceeds from asset sales.

Maturities of Long-term Debt – The Company's long-term debt matures as follows (in thousands):

December 31:	
2020	$ 63,000
2021	94,149
2022	88,338
2023	—
2024	—
	$ 245,487

9. LEASES.

As discussed in Note 1, on January 1, 2019, the Company adopted the provisions of ASC 842 using the prospective transition approach, which applies the provisions of ASC 842 upon adoption, with no change to prior periods. This adoption resulted in the Company recognizing initial right of use assets and lease liabilities of $43,753,000. The adoption did not have a significant impact on the Company's consolidated statements of operations.

Upon the initial adoption of ASC 842, the Company elected the following practical expedients allowable under the guidance: not to reassess whether any expired or existing contracts are or contain leases; not to reassess the lease classification for any expired or existing leases; not to reassess initial direct costs for any existing leases; not to separately identify lease and nonlease components; and not to evaluate historical land easements. Additionally, the Company elected the short-term lease exemption policy, applying the requirements of ASC 842 to only long-term (greater than 1 year) leases.

The Company leases railcar equipment, office equipment and land for certain of its facilities. Operating lease right of use assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. The Company uses its estimated incremental borrowing rate, unless an implicit rate is readily determinable, as the discount rate for each lease in determining the present value of lease payments. For the year ended December 31, 2019, the Company's weighted average discount rate was 6.00%. Operating lease expense is recognized on a straight-line basis over the lease term.

The Company determines if an arrangement is a lease or contains a lease at inception. The Company's leases have remaining lease terms of approximately 1 year to 56 years, which may include options to extend the lease when it is reasonably certain the Company will exercise those options. For the year ended December 31, 2019, the weighted average remaining lease terms of equipment and land-related leases were 2.46 years and 13.94 years, respectively. The Company does not have lease arrangements with residual value guarantees, sale leaseback terms or material restrictive covenants. The Company does not have any material finance lease obligations nor sublease agreements.

The following table summarizes the remaining maturities of the Company's operating lease liabilities, assuming all land lease extensions are taken, as of December 31, 2019 (in thousands):

Year Ended:	Equipment	Land Related
2020	$ 3,736	$ 1,054
2021	2,202	1,077
2022	2,083	1,100
2023	1,475	1,013
2024	858	1,001
2025-43	726	33,160
Less Interest	(1,453)	(23,404)
	$ 9,627	$ 15,001

For the year ended December 31, 2019, the Company recorded operating lease costs of $9,948,000 in cost of goods sold and $472,000 in selling, general and administrative expenses, in the Company's statements of operations.

10. PENSION PLANS.

Retirement Plan - The Company sponsors a defined benefit pension plan (the "Retirement Plan") that is noncontributory, and covers only "grandfathered" unionized employees at its Pekin, Illinois, facility. The Company assumed the Retirement Plan as part of its acquisition of PE Central on July 1, 2015. Benefits are based on a prescribed formula based upon the employee's years of service. Employees hired after November 1, 2010, are not eligible to participate in the Retirement Plan. The Company uses a December 31 measurement date for its Retirement Plan. The Company's funding policy is to make the minimum annual contribution required by applicable regulations.

Information related to the Retirement Plan as of and for the years ended December 31, 2019 and 2018 is presented below (dollars in thousands):

	2019	2018
Changes in plan assets:		
Fair value of plan assets, beginning	$ 13,257	$ 13,958
Actual gains (losses)	2,692	(946)
Benefits paid	(698)	(667)
Company contributions	403	912
Participant contributions	—	—
Fair value of plan assets, ending	$ 15,654	$ 13,257
Less: projected accumulated benefit obligation	$ 21,643	$ 18,690
Funded status, (underfunded)/overfunded	$ (5,989)	$ (5,433)
Amounts recognized in the consolidated balance sheets:		
Other liabilities	$ (5,989)	$ (5,433)
Accumulated other comprehensive loss (income)	$ 1,654	$ 1,069
Components of net periodic benefit costs are as follows:		
Service cost	$ 374	$ 424
Interest cost	760	694
Expected return on plan assets	(760)	(816)
Net periodic benefit cost	$ 374	$ 302
Loss recognized in other comprehensive income (expense)	$ 585	$ 343
Assumptions used in computation benefit obligations:		
Discount rate	3.25%	4.15%
Expected long-term return on plan assets	6.25%	6.25%
Rate of compensation increase	—	—

The Company expects to make contributions in the year ending December 31, 2020 of approximately $0.7 million. Net periodic benefit cost for 2020 is estimated at approximately $0.2 million.

The following table summarizes the expected benefit payments for the Company's Retirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2020	$ 800
2021	810
2022	840
2023	880
2024	920
2025-29	5,250
	$ 9,500

See Note 15 for discussion of the Retirement Plan's fair value disclosures.

Historical and future expected returns of multiple asset classes were analyzed to develop a risk-free real rate of return and risk premiums for each asset class. The overall rate for each asset class was developed by combining a long-term inflation component, the risk-free real rate of return, and the associated risk premium. A weighted average rate was developed based on those overall rates and the target asset allocation of the plan.

The Company's pension committee is responsible for overseeing the investment of pension plan assets. The pension committee is responsible for determining and monitoring the appropriate asset allocations and for selecting or replacing investment managers, trustees, and custodians. The pension plan's current investment target allocations are 50% equities and 50% debt. The pension committee reviews the actual asset allocation in light of these targets periodically and rebalances investments as necessary. The pension committee also evaluates the performance of investment managers as compared to the performance of specified benchmarks and peers and monitors the investment managers to ensure adherence to their stated investment style and to the plan's investment guidelines.

Postretirement Plan - The Company also sponsors a health care plan and life insurance plan (the "Postretirement Plan") that provides postretirement medical benefits and life insurance to certain "grandfathered" unionized employees. The Company assumed the Postretirement Plan as part of its acquisition of PE Central on July 1, 2015. Employees hired after December 31, 2000, are not eligible to participate in the Postretirement Plan. The plan is contributory, with contributions required at the same rate as active employees. Benefit eligibility under the plan reduces at age 65 from a defined benefit to a defined dollar cap based upon years of service.

Information related to the Postretirement Plan as of December 31, 2019 and 2018 is presented below (dollars in thousands):

	2019	**2018**
Amounts at the end of the year:		
Accumulated/projected benefit obligation	$ 5,274	$ 5,711
Fair value of plan assets	—	—
Funded status, (underfunded)/overfunded	$ (5,274)	$ (5,711)
Amounts recognized in the consolidated balance sheets:		
Accrued liabilities	$ (280)	$ (320)
Other liabilities	$ (4,994)	$ (5,391)
Accumulated other comprehensive loss	$ 716	$ 1,390

Information related to the Postretirement Plan for the years ended December 31, 2019 and 2018 is presented below (dollars in thousands):

	Years Ended December 31, 2019	Years Ended December 31, 2018
Amounts recognized in the plan for the year:		
Company contributions	$ 171	$ 137
Participant contributions	$ 24	$ 14
Benefits paid	$ (195)	$ (152)
Components of net periodic benefit costs are as follows:		
Service cost	$ 67	$ 83
Interest cost	219	182
Amortization of prior service costs	122	131
Net periodic benefit cost	$ 408	$ 396
Gain recognized in other comprehensive income	$ (674)	$ (118)
Discount rate used in computation of benefit obligations	2.95%	3.35%

The Company does not expect to recognize any amortization of net actuarial loss during the year ended December 31, 2020.

The following table summarizes the expected benefit payments for the Company's Post-Retirement Plan for each of the next five fiscal years and in the aggregate for the five fiscal years thereafter (in thousands):

December 31:	
2020	$ 280
2021	320
2022	300
2023	330
2024	370
Thereafter	2,060
	$ 3,660

For purposes of determining the cost and obligation for pre-Medicare postretirement medical benefits, 6.75% annual rate of increase in the per capita cost of covered benefits (i.e., health care trend rate) was assumed for the plan in 2021, adjusting to a rate of 4.50% in 2030. Assumed health care cost trend rates have a significant effect on the amounts reported for health care plans.

11. INCOME TAXES.

The Company recorded a provision (benefit) for income taxes as follows (in thousands):

	Years Ended December 31,	
	2019	2018
Current provision (benefit)	$ (22)	$ (589)
Deferred provision (benefit)	2	27
Total	$ (20)	$ (562)

A reconciliation of the differences between the United States statutory federal income tax rate and the effective tax rate as provided in the consolidated statements of operations is as follows:

	Years Ended December 31,	
	2019	2018
Statutory rate	21.0%	21.0%
State income taxes, net of federal benefit	5.7	5.4
Change in valuation allowance	(22.4)	(20.3)
Noncontrolling interest	(3.3)	(3.0)
Non-deductible items	(0.1)	(0.7)
Other	(1.0)	(1.6)
Effective rate	(0.1)%	0.8%

Deferred income taxes are provided using the asset and liability method to reflect temporary differences between the financial statement carrying amounts and the tax bases of assets and liabilities using presently enacted tax rates and laws. The components of deferred income taxes included in the consolidated balance sheets were as follows (in thousands):

	December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	$ 61,775	$ 48,082
R&D, Energy and AMT credits	3,864	4,247
Disallowed interest	8,242	3,769
Railcar contracts	379	650
Stock-based compensation	551	782
Allowance for doubtful accounts and other assets	578	643
Derivatives	—	1,214
Pension liability	2,979	2,941
Property and equipment	3,325	—
Other	3,458	2,134
Total deferred tax assets	85,151	64,462
Deferred tax liabilities:		
Property and equipment	—	(23,013)
Intangibles	(749)	(749)
Derivatives	(153)	—
Other	(437)	(363)
Total deferred tax liabilities	(1,339)	(24,125)
Valuation allowance	(84,065)	(40,588)
Net deferred tax liabilities, included in other liabilities	$ (253)	$ (251)

A portion of the Company's net operating loss carryforwards are subject to provisions of the tax law that limits the use of losses incurred by a corporation prior to the date certain ownership changes occur. These limitations also apply to certain depreciation deductions associated with assets on hand at the time of the ownership change and otherwise allowable during the five-year period following the ownership change. As the five-year limitation period lapsed in 2019, these disallowed deductions are reflected in property and equipment in the schedule above but continue to be subject to the annual limitation that applies to the pre-change net operating losses. Due to the limitation on the use of net operating losses and deprecation deductions, a significant portion of these carryforwards will expire regardless of whether the Company generates future taxable income. After reducing these net operating loss carryforwards for the amount which will expire due to this limitation, the Company had remaining federal net operating loss carryforwards of approximately $228,837,000 and state net operating loss carryforwards of approximately $216,265,000 at December 31, 2019. These net operating loss carryforwards expire as follows (in thousands):

Tax Years	Federal	State
2020–2024	$ —	$ —
2025–2029	13,781	28,993
2030–2034	101,576	35,238
2035 and after	41,942	152,034
Non-expiring NOLs	71,538	—
Total NOLs	$ 228,837	$ 216,265

Certain of these net operating losses are not immediately available, but become available to be utilized in each of the years ended December 31, as follows (in thousands):

Year	Federal	State
2020	$ 146,738	$ 169,539
2021	6,308	5,318
2022	6,308	5,318
2023	6,308	5,318
2024	6,308	5,135

To the extent amounts are not utilized in any year, they may be carried forward to the next year until expiration. These amounts may change if there are future additional limitations on their utilization.

In assessing whether the deferred tax assets are realizable, a more likely than not standard is applied. If it is determined that it is more likely than not that deferred tax assets will not be realized, a valuation allowance must be established against the deferred tax assets. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the periods in which the associated temporary differences become deductible. Management considers the scheduled reversal of deferred tax liabilities, projected future taxable income and tax planning strategies in making this assessment.

A valuation allowance was established in the amount of $84,065,000 and $40,588,000 as of December 31, 2019 and 2018, respectively, based on the Company's assessment of the future realizability of certain deferred tax assets. The valuation allowance on deferred tax assets is related to future deductible temporary differences and net operating loss carryforwards for which the Company has concluded it is more likely than not that these items will not be realized in the ordinary course of operations.

For the year ended December 31, 2019, the Company recorded an increase in valuation allowance of $43,477,000. Of this increase, $22,641,000 was primarily the offsetting impact of an increase in deferred tax assets associated with additional net operating losses in 2019. The remaining increase of $20,836,000 relates to a deferred asset related to previously disallowed depreciation discussed above. For the year ended December 31, 2018, the Company recorded an increase in the valuation allowance of $15,949,000. This increase was primarily the offsetting impact of an increase in deferred tax assets associated with additional net operating losses in 2018.

At December 31, 2018, the Company accrued $235,000 in tax uncertainties related to a refund claim. There was no accrued interest or penalties relating to tax uncertainties at December 31, 2019.

The Tax Cuts and Jobs Act ("TCJA") was enacted on December 22, 2017. The Company recognized the income tax effects of the TCJA in its 2017 financial statements in accordance with Staff Accounting Bulletin No. 118, which provides SEC staff guidance for the application of ASC Topic 740, *Income Taxes*, in the reporting period in which the TCJA was signed into law. The Company did not identify items for which the income tax effects of the TCJA was not completed as of December 31, 2017.

Amounts recorded where accounting was complete principally related to the reduction in the U.S. corporate income tax rate to 21%. This resulted in the Company reporting an income tax benefit of $321,000 as the deferred tax liabilities associated with indefinite lived intangible assets were remeasured at the new 21% rate. This rate reduction decreased gross deferred assets by approximately $10,170,000 and valuation allowance by $10,545,000. Absent this deferred tax liability, the Company was in a net deferred tax asset position that is offset by a full valuation allowance, resulting in a net tax effect of zero.

For the year ended December 31, 2018, provisions of Internal Revenue Code Section 163(j), as amended by the TCJA, became effective which now limits the deductibility of interest expense to 30% of adjusted taxable income. The Company recorded a related deferred asset of $8,242,000 and $3,769,000 at December 31, 2019 and 2018, respectively, which has been fully offset by a valuation allowance.

The Company is subject to income tax in the United States federal jurisdiction and various state jurisdictions and has identified its federal tax return and tax returns in state jurisdictions below as "major" tax filings. These jurisdictions, along with the years still open to audit under the applicable statutes of limitation, are as follows:

Jurisdiction	Tax Years
Federal	2016 – 2018
Arizona	2015 – 2018
California	2015 – 2018
Colorado	2014 – 2018
Idaho	2016 – 2018
Illinois	2016 – 2018
Indiana	2016 – 2018
Iowa	2016 – 2018
Kansas	2016 – 2018
Minnesota	2016 – 2018
Missouri	2016 – 2018
Nebraska	2016 – 2018
Oklahoma	2016 – 2018
Oregon	2016 – 2018
Texas	2015 – 2018

However, because the Company had net operating losses and credits carried forward in several of the jurisdictions, including the United States federal and California jurisdictions, certain items attributable to closed tax years are still subject to adjustment by applicable taxing authorities through an adjustment to tax attributes carried forward to open years.

12. PREFERRED STOCK.

The Company has 6,734,835 undesignated shares of authorized and unissued preferred stock, which may be designated and issued in the future on the authority of the Company's Board of Directors. As of December 31, 2019, the Company had the following designated preferred stock:

Series A Preferred Stock – The Company has authorized 1,684,375 shares of Series A Cumulative Redeemable Convertible Preferred Stock ("Series A Preferred Stock"), with none outstanding at December 31, 2019 and 2018. Shares of Series A Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

Upon any issuance, the Series A Preferred Stock would rank senior in liquidation and dividend preferences to the Company's common stock. Holders of Series A Preferred Stock would be entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 5% per annum of the purchase price per share of the Series A Preferred Stock. The holders of the Series A Preferred Stock would have conversion rights initially equivalent to two shares of common stock for each share of Series A Preferred Stock, subject to customary antidilution adjustments. Certain specified issuances will not result in antidilution adjustments. The shares of Series A Preferred Stock would also be subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series A Preferred Stock of 25% or more. Accrued but unpaid dividends on the Series A Preferred Stock are to be paid in cash upon any conversion of the Series A Preferred Stock.

The holders of Series A Preferred Stock would have a liquidation preference over the holders of the Company's common stock equivalent to the purchase price per share of the Series A Preferred Stock plus any accrued and unpaid dividends on the Series A Preferred Stock. A liquidation would be deemed to occur upon the happening of customary events, including transfer of all or substantially all of the Company's capital stock or assets or a merger, consolidation, share exchange, reorganization or other transaction or series of related transactions, unless holders of 66 2/3% of the Series A Preferred Stock vote affirmatively in favor of or otherwise consent to such transaction.

Series B Preferred Stock – The Company has authorized 1,580,790 shares of Series B Cumulative Convertible Preferred Stock ("Series B Preferred Stock"), with 926,942 shares outstanding at December 31, 2019 and 2018. Shares of Series B Preferred Stock that are converted into shares of the Company's common stock revert to undesignated shares of authorized and unissued preferred stock.

The Series B Preferred Stock ranks senior in liquidation and dividend preferences to the Company's common stock. Holders of Series B Preferred Stock are entitled to quarterly cumulative dividends payable in arrears in cash in an amount equal to 7.00% per annum of the purchase price per share of the Series B Preferred Stock; however, subject to the provisions of the Letter Agreement described below, such dividends may, at the option of the Company, be paid in additional shares of Series B Preferred Stock based initially on the liquidation value of the Series B Preferred Stock. In addition to the quarterly cumulative dividends, holders of the Series B Preferred Stock are entitled to participate in any common stock dividends declared by the Company to its common stockholders. The holders of Series B Preferred Stock have a liquidation preference over the holders of the Company's common stock initially equivalent to $19.50 per share of the Series B Preferred Stock plus any accrued and unpaid dividends on the Series B Preferred Stock. A liquidation will be deemed to occur upon the happening of customary events, including the transfer of all or substantially all of the capital stock or assets of the Company or a merger, consolidation, share exchange, reorganization or other transaction or series of related transaction, unless holders of 66 2/3% of the Series B Preferred Stock vote affirmatively in favor of or otherwise consent that such transaction shall not be treated as a liquidation. The Company believes that such liquidation events are within its control and therefore has classified the Series B Preferred Stock in stockholders' equity.

As of December 31, 2018, the Series B Preferred Stock was convertible into 634,641 shares of the Company's common stock. The conversion ratio is subject to customary antidilution adjustments. In addition, antidilution adjustments are to occur in the event that the Company issues equity securities, including derivative securities convertible into equity securities (on an as-converted or as-exercised basis), at a price less than the conversion price then in effect. The shares of Series B Preferred Stock are also subject to forced conversion upon the occurrence of a transaction that would result in an internal rate of return to the holders of the Series B Preferred Stock of 25% or more. The forced conversion is to be based upon the conversion ratio as last adjusted. Accrued but unpaid dividends on the Series B Preferred Stock are to be paid in cash upon any conversion of the Series B Preferred Stock.

The holders of Series B Preferred Stock vote together as a single class with the holders of the Company's common stock on all actions to be taken by the Company's stockholders. Each share of Series B Preferred Stock entitles the holder to approximately 0.03 votes per share on all matters to be voted on by the stockholders of the Company. Notwithstanding the foregoing, the holders of Series B Preferred Stock are afforded numerous customary protective provisions with respect to certain actions that may only be approved by holders of a majority of the shares of Series B Preferred Stock.

In 2008, the Company entered into Letter Agreements with Lyles United LLC ("Lyles United") and other purchasers under which the Company expressly waived its rights under the Certificate of Designations relating to the Series B Preferred Stock to make dividend payments in additional shares of Series B Preferred Stock in lieu of cash dividend payments without the prior written consent of Lyles United and the other purchasers.

On or about December 19, 2019, the Company and the holders of its Series B Preferred Stock entered into letter agreements under which the holders agreed that until the earlier of (i) the Company's repayment of its obligations in respect of its senior secured notes and thereafter until the next scheduled quarterly installment of Series B Preferred Stock dividends, or (ii) the occurrence of a specified event of default under the letter agreement, or (c) two years from the date of the letter agreement (collectively, the "Waiver Period"), the holders waive any rights and remedies against the Company with respect to any unpaid dividends. Cumulative dividends on the Series B Preferred Stock will continue to accrue during the Waiver Period and remain owing to the holders of the Series B Preferred Stock.

Registration Rights Agreement – In connection with the sale of its Series B Preferred Stock, the Company entered into a registration rights agreement with Lyles United. The registration rights agreement is to be effective until the holders of the Series B Preferred Stock, and their affiliates, as a group, own less than 10% for each of the series issued, including common stock into which such Series B Preferred Stock has been converted. The registration rights agreement provides that holders of a majority of the Series B Preferred Stock, including common stock into which such Series B Preferred Stock has been converted, may demand and cause the Company to register on their behalf the shares of common stock issued, issuable or that may be issuable upon conversion of the Preferred Stock and as payment of dividends thereon, and upon exercise of the related warrants (collectively, the "Registrable Securities"). The Company is required to keep such registration statement effective until such time as all of the Registrable Securities are sold or until such holders may avail themselves of Rule 144 for sales of Registrable Securities without registration under the Securities Act of 1933, as amended. The holders are entitled to two demand registrations on Form S-1 and unlimited demand registrations on Form S-3; provided, however, that the Company is not obligated to effect more than one demand registration on Form S-3 in any calendar year. In addition to the demand registration rights afforded the holders under the registration rights agreement, the holders are entitled to unlimited "piggyback" registration rights. These rights entitle the holders who so elect to be included in registration statements to be filed by the Company with respect to other registrations of equity securities. The Company is responsible for all costs of registration, plus reasonable fees of one legal counsel for the holders, which fees are not to exceed $25,000 per registration. The registration rights agreement includes customary representations and warranties on the part of both the Company and the holders and other customary terms and conditions.

The Company accrued and paid in cash preferred stock dividends of $946,000 and $1,265,000 for the years ended December 31, 2019 and 2018, respectively. The Company accrued but did not pay in cash preferred stock dividends of $319,000 for the year ended December 31, 2019.

13. COMMON STOCK AND WARRANTS.

The following table summarizes warrant activity for the years ended December 31, 2019 and 2018 (number of shares in thousands):

	Number of Shares	Price per Share	Weighted Average Exercise Price
Balance at December 31, 2017	4	$ 735.00	$ 735.00
Warrants expired	(4)	$ 735.00	$ 735.00
Balance at December 31, 2018	—	$ —	$ —
Warrants issued	5,500	$ 1.00	$ 1.00
Balance at December 31, 2019	5,500	$ 1.00	$ 1.00

Warrants issued to Senior Noteholders – On December 22, 2019, in connection with an extension of the Company's senior Notes, the Company issued warrants to purchase an aggregate of 5,500,000 shares of the Company's common stock. The warrants have an exercise price of $1.00 per share and are exercisable commencing June 22, 2020 and expire on December 22, 2021. The Company has determined that the warrants issued in the above transaction did not meet the conditions for classification in stockholders' equity and as such, the Company has recorded them as a liability at fair value. The Company will revalue them at each reporting period, beginning in the first quarter of 2020. See Note 16 for the Company's fair value assumptions.

Nonvoting Common Stock – In connection with the Company's PE Central acquisition, the Company issued nonvoting common shares exercisable at the holders' election. As of December 31, 2019, an aggregate of 3,539,236 shares of nonvoting common stock had been exchanged for an equal number of shares of the Company's common stock upon the holders' request. As of December 31, 2019, 896 shares of nonvoting common stock were outstanding.

At-the-Market Program – In October 2018, the Company has established an "at-the-market" equity distribution program under which it may offer and sell shares of common stock to, or through, sales agents by means of ordinary brokers' transactions on the NASDAQ, in block transactions, or as otherwise agreed to between the Company and its sales agent at prices deemed appropriate. The Company is under no obligation to offer and sell shares of common stock under the program. For the years ended December 31, 2019 and 2018, the Company issued 3,137,392 and 838,213 shares of common stock through its "at-the-market" equity program that resulted in net proceeds of $3,670,413 and $2,056,966 and fees paid to its sales agent of $65,838 and $36,951, respectively. The net proceeds from these issuances were used to prepay a portion of the Company's senior secured notes.

14. STOCK-BASED COMPENSATION.

The Company has two equity incentive compensation plans: a 2006 Stock Incentive Plan and a 2016 Stock Incentive Plan.

2006 Stock Incentive Plan – The 2006 Stock Incentive Plan authorized the issuance of incentive stock options ("ISOs") and non-qualified stock options ("NQOs"), restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company's officers, directors or key employees or to consultants that do business with the Company for up to an aggregate of 1,715,000 shares of common stock. In June 2016, this plan was terminated, except to the extent of issued and outstanding unvested stock awards and options.

2016 Stock Incentive Plan – On June 16, 2016, the Company's shareholders approved the 2016 Stock Incentive Plan, which authorizes the issuance of ISOs, NQOs, restricted stock, restricted stock units, stock appreciation rights, direct stock issuances and other stock-based awards to the Company's officers, directors or key employees or to consultants that do business with the Company initially for up to an aggregate of 1,150,000 shares of common stock. On June 14, 2018, the Company's shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 3,650,000. On November 7, 2019, the Company's shareholders approved an increase to the aggregate number of shares authorized under the 2016 Stock Incentive Plan to 5,650,000.

Stock Options – Summaries of the status of Company's stock option plans as of December 31, 2019 and 2018 and of changes in options outstanding under the Company's plans during those years are as follows (number of shares in thousands):

	Years Ended December 31,			
	2019		2018	
	Number of Shares	Weighted Average Exercise Price	Number of Shares	Weighted Average Exercise Price
Outstanding at beginning of year	229	$ 4.15	230	$ 4.18
Options cancelled	—	—	(1)	12.90
Outstanding at end of year	229	$ 4.15	229	$ 4.15
Options exercisable at end of year	229	$ 4.15	229	$ 4.15

Stock options outstanding as of December 31, 2019 were as follows (number of shares in thousands):

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted Average Remaining Contractual Life (yrs.)	Weighted Average Exercise Price	Number Exercisable	Weighted Average Exercise Price
$ 3.74	219	3.47	$ 3.74	219	$ 3.74
$ 12.90	10	1.59	$ 12.90	10	$ 12.90

The options outstanding at December 31, 2019 and 2018 had no intrinsic value.

Restricted Stock – The Company granted to certain employees and directors shares of restricted stock under its 2006 and 2016 Stock Incentive Plans. A summary of unvested restricted stock activity is as follows (shares in thousands):

	Number of Shares	Weighted Average Grant Date Fair Value Per Share
Unvested at December 31, 2018	1,635	$ 3.49
Issued	1,434	$ 1.01
Vested	(669)	$ 3.96
Canceled	(199)	$ 2.31
Unvested at December 31, 2019	2,201	$ 1.84

The fair value of the common stock at vesting aggregated $599,000 and $1,629,000for the years ended December 31, 2019 and 2018, respectively. Stock-based compensation expense related to employee and non-employee restricted stock and option grants recognized in selling, general and administrative expenses, were as follows (in thousands):

	Years Ended December 31,	
	2019	2018
Employees	$ 2,422	$ 2,905
Non-employees	387	533
Total stock-based compensation expense	$ 2,809	$ 3,438

Employee grants typically have a three year vesting schedule, while the non-employee grants have a one year vesting schedule. At December 31, 2019, the total compensation expense related to unvested awards which had not been recognized was $2,042,000 and the associated weighted-average period over which the compensation expense attributable to those unvested awards will be recognized was approximately 0.78 years.

15. COMMITMENTS AND CONTINGENCIES.

Commitments – The following is a description of significant commitments at December 31, 2019:

Sales Commitments – The Company had open ethanol indexed-price contracts for 204,563,000 gallons of ethanol as of December 31, 2019 and open fixed-price ethanol sales contracts totaling $104,014,000 as of December 31, 2019. The Company had open fixed-price co-product sales contracts totaling $30,116,000 as of December 31, 2019 and open indexed-price co-product sales contracts for 238,000 tons as of December 31, 2019. These sales contracts are scheduled to be completed throughout 2020.

Purchase Commitments – At December 31, 2019, the Company had indexed-price purchase contracts to purchase 6,317,000 gallons of ethanol and fixed-price purchase contracts to purchase $3,893,000 of ethanol from its suppliers. The Company had fixed-price purchase contracts to purchase $21,861,000 of corn from its suppliers. These purchase commitments are scheduled to be satisfied throughout 2020.

Assessment Financing – In September 2016, the Company signed an agreement to finance and construct a 5 megawatt solar project at its Madera facility. The amount financed is for up to $10.0 million, to be amortized over twenty years as part of the facility's property tax assessments. As of December 31, 2019 and 2018, the Company had outstanding $9,342,000, in the accompanying consolidated balance sheets attributable to this financing. The Company expects to pay approximately $0.9 million per year in connection with its property tax payments, which includes an interest component based upon a 5.6% interest rate on the outstanding balance of the assessment.

Contingencies – The following is a description of significant contingencies at December 31, 2019:

Litigation – The Company is subject to various claims and contingencies in the ordinary course of its business, including those related to litigation, business transactions, employee-related matters, and others. When the Company is aware of a claim or potential claim, it assesses the likelihood of any loss or exposure. If it is probable that a loss will result and the amount of the loss can be reasonably estimated, the Company will record a liability for the loss. If the loss is not probable or the amount of the loss cannot be reasonably estimated, the Company discloses the claim if the likelihood of a potential loss is reasonably possible and the amount involved could be material. While there can be no assurances, the Company does not expect that any of its pending legal proceedings will have a material financial impact on the Company's operating results.

The Company has evaluated the above cases as well as other pending cases. The Company currently has not recorded a litigation contingency liability with respect to these cases.

16. FAIR VALUE MEASUREMENTS.

The fair value hierarchy prioritizes the inputs used in valuation techniques into three levels, as follows:

- Level 1 – Observable inputs – unadjusted quoted prices in active markets for identical assets and liabilities;
- Level 2 – Observable inputs other than quoted prices included in Level 1 that are observable for the asset or liability through corroboration with market data; and
- Level 3 – Unobservable inputs – includes amounts derived from valuation models where one or more significant inputs are unobservable. For fair value measurements using significant unobservable inputs, a description of the inputs and the information used to develop the inputs is required along with a reconciliation of Level 3 values from the prior reporting period.

Pooled separate accounts – Pooled separate accounts invest primarily in domestic and international stocks, commercial paper or single mutual funds. The net asset value is used as a practical expedient to determine fair value for these accounts. Each pooled separate account provides for redemptions by the Retirement Plan at reported net asset values per share, with little to no advance notice requirement, therefore these funds are classified within Level 2 of the valuation hierarchy.

Warrants – The Company's warrants issued December 22, 2019, were valued using the Black-Scholes Valuation Model. Significant assumptions used and related fair value for the warrants as of December 31, 2019 were as follows:

Original Issuance	Exercise Price	Volatility	Risk Free Interest Rate	Term (years)	Warrants Outstanding	Fair Value
12/22/19	$ 1.00	76.0%	1.66%	3.00	5,500,000	$ 977,000

The fair values of the warrants are based on unobservable inputs and are designated as Level 3 inputs.

Long-Lived Assets Held-for-Sale – The Company recorded its long-lived assets associated with Pacific Aurora at fair value at December 31, 2019 of $70,400,000. The fair values of these assets are based on observable values for the assets through corroboration with market data and are designated as Level 3 inputs.

Other Derivative Instruments – The Company's other derivative instruments consist of commodity positions. The fair values of the commodity positions are based on quoted prices on the commodity exchanges and are designated as Level 1 inputs.

The following table summarizes recurring and nonrecurring fair value measurements by level at December 31, 2019 (in thousands):

	Fair Value	Level 1	Level 2	Level 3	Benefit Plan Percentage Allocation
Assets:					
Derivative financial instruments	$ 2,438	$ 2,438	$ —	$ —	
Long-lived assets held-for-sale	70,400			70,400	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	4,654	—	4,654	—	30%
Small/Mid U.S. Equity(3)	2,348	—	2,348	—	15%
International Equity(4)	2,596	—	2,596	—	17%
Fixed Income(5)	6,056	—	6,056	—	38%
	$ 88,492	$ 2,438	$ 15,654	$ 70,400	
Liabilities:					
Derivative financial instruments	$ (1,860)	$ (1,860)	$ —	$ —	
Warrants	(977)	—	—	(977)	
	$ (2,837)	$ (1,860)	$ —	$ (977)	

The following table summarizes recurring fair value measurements by level at December 31, 2018 (in thousands):

	Fair Value	Level 1	Level 2	Level 3	Benefit Plan Percentage Allocation
Assets:					
Derivative financial instruments	$ 1,765	$ 1,765	$ —	$ —	
Defined benefit plan assets(1) (pooled separate accounts):					
Large U.S. Equity(2)	3,621	—	3,621	—	27%
Small/Mid U.S. Equity(3)	1,844	—	1,844	—	14%
International Equity(4)	2,106	—	2,106	—	16%
Fixed Income(5)	5,686	—	5,686	—	43%
	$ 15,022	$ 1,765	$ 13,257	$ —	
Liabilities:					
Derivative financial instruments	$ (6,309)	$ (6,309)	$ —	$ —	

(1) See Note 10 for accounting discussion.
(2) This category includes investments in funds comprised of equity securities of large U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.
(3) This category includes investments in funds comprised of equity securities of small- and medium-sized U.S. companies. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.
(4) This category includes investments in funds comprised of equity securities of foreign companies including emerging markets. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.
(5) This category includes investments in funds comprised of U.S. and foreign investment-grade fixed income securities, high-yield fixed income securities that are rated below investment-grade, U.S. treasury securities, mortgage-backed securities, and other asset-backed securities. The funds are valued using the net asset value method in which an average of the market prices for the underlying investments is used to value the fund.

17. PARENT COMPANY FINANCIALS.

Restricted Net Assets – At December 31, 2019, the Company had approximately $180,900,000 of net assets at its subsidiaries that were not available to be transferred to Pacific Ethanol in the form of dividends, distributions, loans or advances due to restrictions contained in the credit facilities of these subsidiaries.

Parent company financial statements for the periods covered in this report are set forth below.

	December 31,	
ASSETS	**2019**	**2018**
Current Assets:		
Cash and cash equivalents	$ 4,985	$ 6,759
Receivables from subsidiaries	13,057	17,156
Other current assets	2,349	1,659
Total current assets	20,391	25,574
Property and equipment, net	269	522
Other Assets:		
Investments in subsidiaries	218,464	286,666
Right of use lease assets	3,253	—
Pacific Ethanol West plant receivable	55,750	58,766
Other assets	1,452	1,437
Total other assets	278,919	346,869
Total Assets	$ 299,579	$ 372,965
Current Liabilities:		
Accounts payable and accrued liabilities	$ 5,907	$ 2,469
Accrued PE Op Co. purchase	3,829	3,829
Current portion of long-term debt	10,000	66,255
Other current liabilities	659	385
Total current liabilities	20,395	72,938
Long-term debt, net	56,110	—
Deferred tax liabilities	253	251
Other liabilities	3,041	9
Total Liabilities	79,799	73,198
Stockholders' Equity:		
Preferred stock	1	1
Common and non-voting common stock	56	46
Additional paid-in capital	942,307	932,179
Accumulated other comprehensive loss	(2,370)	(2,459)
Accumulated deficit	(720,214)	(630,000)
Total Pacific Ethanol, Inc. stockholders' equity	219,780	299,767
Total Liabilities and Stockholders' Equity	$ 299,579	$ 372,965

	Years Ended December 31,	
	2019	2018
Management fees from subsidiaries	$ 12,682	$ 12,408
Selling, general and administrative expenses	16,007	16,795
Loss from operations	(3,325)	(4,387)
Loss on debt extinguishment	(6,517)	—
Interest income	4,600	4,703
Interest expense	(9,637)	(8,678)
Other expense, net	(86)	(74)
Loss before provision (benefit) for income taxes	(14,965)	(8,436)
Benefit for income taxes	20	562
Loss before equity in earnings of subsidiaries	(14,945)	(7,874)
Equity in losses of subsidiaries	(74,004)	(52,399)
Consolidated net loss	$ (88,949)	$ (60,273)

	For the Years Ended December 31, 2019	2018
Operating Activities:		
Net loss	$ (88,949)	$ (60,273)
Adjustments to reconcile net loss to cash provided by (used in) operating activities:		
Equity in losses of subsidiaries	74,004	52,399
Dividends from subsidiaries	—	25,000
Depreciation	267	567
Loss on debt extinguishment	6,517	—
Deferred income taxes	—	27
Amortization of debt discounts	689	720
Changes in operating assets and liabilities:		
Accounts receivables	—	(9,018)
Other assets	3,277	100
Accounts payable and accrued expenses	2,673	740
Accounts receivable with subsidiaries	2,115	—
Accounts payable with subsidiaries	(49)	2,409
Net cash provided by (used in) operating activities	$ 544	$ 12,671
Investing Activities:		
Additions to property and equipment	$ (14)	$ (18)
Investments in subsidiaries	—	(10,000)
Net cash used in investing activities	$ (14)	$ (10,018)
Financing Activities:		
Proceeds from issuance of common stock	$ 3,670	$ 2,057
Debt issuances costs	(1,280)	—
Payments on senior notes	(3,748)	(2,000)
Preferred stock dividend payments	(946)	(1,265)
Net cash provided by (used in) financing activities	$ (2,304)	$ (1,208)
Net increase (decrease) in cash and cash equivalents	(1,774)	1,445
Cash and cash equivalents at beginning of period	6,759	5,314
Cash and cash equivalents at end of period	$ 4,985	$ 6,759

18. QUARTERLY FINANCIAL DATA (UNAUDITED).

The Company's quarterly results of operations for the years ended December 31, 2019 and 2018 are as follows (in thousands).

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
December 31, 2019:				
Net sales	$ 355,803	$ 346,301	$ 365,160	$ 357,617
Gross profit (loss)	$ (2,289)	$ 3,971	$ (14,816)	$ 3,196
Loss from operations	$ (10,524)	$ (2,737)	$ (23,503)	$ (37,919)
Net loss attributed to Pacific Ethanol, Inc.	$ (12,890)	$ (7,646)	$ (27,326)	$ (41,087)
Preferred stock dividends	$ (312)	$ (315)	$ (319)	$ (319)
Net loss available to common stockholders	$ (13,202)	$ (7,961)	$ (27,645)	$ (41,406)
Basic and diluted loss per common share	$ (0.29)	$ (0.17)	$ (0.58)	$ (0.85)
December 31, 2018:				
Net sales	$ 400,027	$ 410,522	$ 370,407	$ 334,415
Gross profit (loss)	$ 3,362	$ (1,273)	$ 3,768	$ (21,021)
Loss from operations	$ (5,953)	$ (10,171)	$ (5,202)	$ (30,211)
Net loss attributed to Pacific Ethanol, Inc.	$ (7,841)	$ (12,908)	$ (7,514)	$ (32,010)
Preferred stock dividends	$ (312)	$ (315)	$ (319)	$ (319)
Net loss available to common stockholders	$ (8,153)	$ (13,223)	$ (7,833)	$ (32,329)
Basic and diluted loss per common share	$ (0.19)	$ (0.31)	$ (0.18)	$ (0.74)

19. SUBSEQUENT EVENT.

In the first quarter of 2020, last year's novel strain of coronavirus (COVID-19), has resulted in businesses suspending or substantially curtailing global operations and travel, quarantines, and an overall substantial slowdown of economic activity. Transportation fuels in particular, including ethanol, have experienced significant price declines and reduced demand. A further downturn in global economic growth, or recessionary conditions in major geographic regions, will lead to reduced demand for ethanol and negatively affect the market prices of our products, further materially and adversely affecting our business, results of operations and liquidity. In response to this, the Company has reduced production at its facilities by more than 60%.

INDEX TO EXHIBITS

Exhibit Number	Description*	Where located Form	File Number	Exhibit Number	Filing Date	Filed Herewith
2.1	Agreement and Plan of Merger dated June 26, 2017 among Pacific Ethanol Central, LLC, ICP Merger Sub, LLC, Illinois Corn Processing, LLC, Illinois Corn Processing Holdings Inc. and MGPI Processing, Inc.	8-K	000-21467	2.1	06/27/2017	
3.1	Certificate of Incorporation	10-Q	000-21467	3.1	11/06/2015	
3.2	Certificate of Designations, Powers, Preferences and Rights of the Series A Cumulative Redeemable Convertible Preferred Stock	10-Q	000-21467	3.2	11/06/2015	
3.3	Certificate of Designations, Powers, Preferences and Rights of the Series B Cumulative Convertible Preferred Stock	10-Q	000-21467	3.3	11/06/2015	
3.4	Certificate of Amendment to Certificate of Incorporation dated June 3, 2010	10-Q	000-21467	3.4	11/06/2015	
3.5	Certificate of Amendment to Certificate of Incorporation effective June 8, 2011	10-Q	000-21467	3.5	11/06/2015	
3.6	Certificate of Amendment to Certificate of Incorporation effective May 14, 2013	10-Q	000-21467	3.6	11/06/2015	
3.7	Certificate of Amendment to Certificate of Incorporation effective July 1, 2015	10-Q	000-21467	3.7	11/06/2015	
3.8	Amended and Restated Bylaws	10-Q	000-21467	3.1	11/12/2014	
4.1	Description of Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934					X
10.1	2006 Stock Incentive Plan, as amended#	S-8	333-196876	4.1	06/18/2014	
10.2	Form of Employee Restricted Stock Agreement under 2006 Stock Incentive Plan#	8-K	000-21467	10.2	10/10/2006	
10.3	Form of Non-Employee Director Restricted Stock Agreement under 2006 Stock Incentive Plan#	8-K	000-21467	10.3	10/10/2006	
10.4	2016 Stock Incentive Plan, as amended#	S-8	333-234613	4.11	11/08/2019	
10.5	Form of Employee Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.5	03/15/2018	
10.6	Form of Non-Employee Director Restricted Stock Agreement under 2016 Stock Incentive Plan#	10-K	000-21467	10.6	03/15/2018	

Exhibit Number	Description*	Where located				Filed Herewith
		Form	File Number	Exhibit Number	Filing Date	
10.7	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Neil M. Koehler#	10-K	000-21467	10.7	03/15/2017	
10.8	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Christopher W. Wright#	10-K	000-21467	10.8	03/15/2017	
10.9	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Bryon T. McGregor#	10-K	000-21467	10.9	03/15/2017	
10.10	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Michael D. Kandris#	10-K	000-21467	10.10	03/15/2017	
10.11	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and Paul P. Kohler#	10-K	000-21467	10.11	03/15/2017	
10.12	Amended and Restated Executive Employment Agreement dated November 7, 2016 between the Registrant and James R. Sneed#	10-K	000-21467	10.12	03/15/2017	
10.13	Pacific Ethanol, Inc. 2019 Short-Term Incentive Plan Description#	10-Q	000-21467	10.8	05/03/2019	
10.14	Form of Indemnity Agreement between the Registrant and each of its Executive Officers and Directors#	10-K	000-21467	10.46	03/31/2010	
10.15	Pacific Ethanol, Inc. Policy for Recoupment of Incentive Compensation dated March 29, 2018#	10-K	000-21467	10.17	03/18/2019	
10.16	Form of Clawback Policy Acknowledgement and Agreement#	10-K	000-21467	10.18	03/18/2019	
10.17	Registration Rights Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.4	03/27/2008	
10.18	Letter Agreement dated March 27, 2008 between the Registrant and Lyles United, LLC	8-K	000-21467	10.5	03/27/2008	
10.19	Letter Agreement dated May 22, 2008 among the Registrant, Neil M. Koehler, Bill Jones, Paul P. Koehler and Thomas D. Koehler#	8-K	000-21467	10.3	05/23/2008	

Exhibit Number	Description*	Where located Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.20	Senior Secured Note Amendment Agreement dated as of December 22, 2019 among the Registrant and the noteholders named therein	8-K	000-21467	10.1	12/26/2019	
10.21	Form of Amended and Restated Senior Secured Note for an aggregate principal amount of $65,649,177.91 issued on December 22, 2019 pursuant to the Senior Secured Note Amendment Agreement dated December 22, 2019 among the Registrant and the noteholders named therein	8-K	000-21467	10.2	12/26/2019	
10.22	Note Amendment dated as of March 20, 2020 by and among Pacific Ethanol, Inc. and the noteholders named therein	8-K	000-21467	10.3	03/26/2020	
10.23	Form of Warrant to Purchase Common Stock for an aggregate of up to 5,500,000 shares issued on December 22, 2019 pursuant to the Senior Secured Note Amendment Agreement dated December 22, 2019 among the Registrant and the noteholders named therein	8-K	000-21467	10.3	12/26/2019	
10.24	Registration Rights Agreement dated as of December 22, 2019 among the Registrant and the holders named therein	8-K	000.21467	10.4	12/26/2019	
10.25	Security Agreement dated December 15, 2016 among Pacific Ethanol, Inc., Cortland Capital Market Services LLC and the holders of Pacific Ethanol, Inc.'s Senior Secured Notes	8-K	000-21467	10.4	12/20/2016	
10.26	First Amendment to Security Agreement dated June 30, 2017 among Pacific Ethanol, Inc., Cortland Capital Market Services LLC and the holders of Pacific Ethanol, Inc.'s Senior Secured Notes	8-K	000-21467	10.5	07/05/2017	
10.27	Second Amendment to Security Agreement dated as of December 22, 2019 among the Registrant, the holders named therein and Cortland Capital Market Services LLC	8-K	000-21467	10.5	12/26/2019	
10.28	Third Amendment to Security Agreement effective as of March 20, 2020 by and among Pacific Ethanol, Inc., each of the holders and new holders named therein, Cortland Products Corp. as successor agent and Cortland Capital Market Services LLC as existing collateral agent	8-K	000-21467	10.10	03/26/2020	

Exhibit Number	Description*	Where located				Filed Herewith
		Form	File Number	Exhibit Number	Filing Date	
10.29	Credit Agreement dated December 15, 2016 among Pacific Ethanol Pekin, Inc., 1st Farm Credit Services, PCA and CoBank, ACB	8-K	000-21467	10.5	12/20/2016	
10.30	Amendment No. 1 to Credit Agreement dated March 1, 2017 among Pacific Ethanol Pekin, LLC, 1st Farm Credit Services, PCA and CoBank, ACB	10-K	000-21467	10.31	03/15/2018	
10.31	Amendment No. 2 to Credit Agreement dated August 7, 2017 among Pacific Ethanol Pekin, LLC, 1st Farm Credit Services, PCA and CoBank, ACB	8-K	000-21467	10.1	08/11/2017	
10.32	Amendment No. 3 to Credit Agreement dated March 30, 2018 among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA, as successor by merger to 1st Farm Credit Services, PCA, and CoBank, ACB	8-K	000-21467	10.1	04/05/2018	
10.33	Amendment No. 4 to Credit Agreement dated March 20, 2019 among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA, as successor by merger to 1st Farm Credit Services, PCA, and CoBank, ACB	10-Q	000-21467	10.1	05/03/2019	
10.34	Amendment No. 5 to Credit Agreement dated July 15, 2019 among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA, as successor by merger to 1st Farm Credit Services, PCA, and CoBank, ACB	8-K	000-21467	10.1	07/19/2019	
10.35	Amendment No. 6 to Credit Agreement dated November 15, 2019 by and among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA and CoBank, ACB	8-K	000-21467	10.1	11/19/2019	
10.36	First Amendment to Amendment No. 6 to Credit Agreement and Other Loan Documents dated as of December 15, 2019 by and among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA, and CoBank, ACB	8-K	000-21467	10.1	12/26/2019	
10.37	Amendment No. 7 to Credit Agreement and Waiver dated December 20, 2019 among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA and CoBank, ACB	S-1	333-235990	10.50	01/21/2020	
10.38	Amendment No. 8 to Credit Agreement dated as of March 20, 2020 by and among Pacific Ethanol Pekin, LLC, Compeer Financial, PCA and CoBank, ACB	8-K	000-21467	10.2	03/26/2020	

Exhibit Number	Description*	Where located Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.39	Third Amended and Restated Revolving Term Note dated December 20, 2019 by Pacific Ethanol Pekin, LLC in favor of Compeer Financial, PCA	S-1	333-235990	10.64	01/21/2020	
10.40	Fourth Amended and Restated Term Note dated December 20, 2019 by Pacific Ethanol Pekin, LLC in favor of Compeer Financial, PCA	S-1	333-235990	10.65	01/21/2020	
10.41	Security Agreement dated December 15, 2016 between Pacific Ethanol Pekin, Inc. and CoBank, ACB	8-K	000-21467	10.6	12/20/2016	
10.42	Amendment to Security Agreement dated December 20, 2019 by and between Pacific Ethanol Pekin, LLC and CoBank, ACB for the benefit of Compeer Financial, PCA	S-1	333-235990	10.53	01/21/2020	
10.43	Amendment to Illinois Future Advance Real Estate Mortgage dated December 20, 2019 by and between Pacific Ethanol Pekin, LLC and Compeer Financial, PCA	S-1	333-235990	10.61	01/21/2020	
10.44	Guaranty and Contribution Agreement by Pacific Ethanol Pekin, LLC dated March 20, 2019 in favor of Compeer Financial, PCA and CoBank, ACB	10-Q	000-21467	10.5	05/03/2019	
10.45	Guaranty by Pacific Ethanol Pekin, LLC dated December 20, 2019 in favor of Compeer Financial, PCA and CoBank, ACB	S-1	333-235990	10.56	01/21/2020	
10.46	Amended and Restated Guaranty and Contribution Agreement dated December 20, 2019 by Pacific Ethanol Central, LLC for the benefit of Compeer Financial, PCA and CoBank, ACB	S-1	333-235990	10.55	01/21/2020	
10.47	Pledge Agreement dated December 20, 2019 by and among Pacific Ethanol Central, LLC, Pacific Ethanol Pekin, LLC and CoBank, ACB	S-1	333-235990	10.57	01/21/2020	
10.48	Security Agreement dated March 20, 2019 by and among Pacific Ethanol Pekin, LLC, Compeer Financial PCA and CoBank ACB	10-Q	000-21467	10.4	05/03/2019	
10.49	First Amendment to Security Agreement dated December 20, 2019 by and between Pacific Ethanol Central, LLC and CoBank, ACB for the benefit of Compeer Financial, PCA	S-1	333-235990	10.52	01/21/2020	

Exhibit Number	Description*	Where located Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.50	Working Capital Maintenance Agreement dated December 15, 2016 between Pacific Ethanol, Inc. and CoBank, ACB	8-K	000-21467	10.9	12/20/2016	
10.51	Pledge Agreement dated March 20, 2019 by and among Pacific Ethanol Central, LLC, Pacific Aurora, LLC and CoBank, ACB	10-Q	000-21467	10.6	05/03/2019	
10.52	First Amendment to Pledge Agreement dated December 20, 2019 by and among Pacific Ethanol Central, LLC, Pacific Aurora, LLC and CoBank, ACB	S-1	333-235990	10.59	01/21/2020	
10.53	Security Agreement dated March 20, 2020 by and between Pacific Ethanol Central, LLC and Cortland Products Corp.	8-K	000-21467	10.5	03/26/2020	
10.54	Pledge Agreement dated March 20, 2020 by and among Pacific Ethanol Central, LLC, Illinois Corn Processing, LLC and Cortland Products Corp.	8-K	000-21467	10.6	03/26/2020	
10.55	Pledge Agreement dated March 20, 2020 by and among Pacific Ethanol Central, LLC, Pacific Ethanol Pekin, LLC and Cortland Products Corp.	8-K	000-21467	10.7	03/26/2020	
10.56	Pledge Agreement dated March 20, 2020 by and among Pacific Ethanol Central, LLC, Pacific Aurora, LLC and Cortland Products Corp.	8-K	000-21467	10.8	03/26/2020	
10.57	Security Agreement dated March 20, 2020 by and among Pacific Ethanol West, LLC, PE Op Co. and Cortland Products Corp.	8-K	000-21467	10.9	03/26/2020	
10.58	Second Amended and Restated Credit Agreement dated August 2, 2017 among Kinergy Marketing LLC, Pacific Ag. Products, LLC, Wells Fargo Bank, National Association, and the parties thereto from time to time as lenders	8-K	000-21467	10.1	08/08/2017	
10.59	Amendment No. 1 to Second Amended and Restated Credit Agreement dated March 27, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC and Wells Fargo Bank, National Association	10-Q	000-21467	10.7	05/03/2019	

Exhibit Number	Description*	Where located: Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.60	Amendment No. 2 to Second Amended and Restated Credit Agreement dated July 31, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association	8-K	000-21467	10.1	08/06/2019	
10.61	Amendment No. 3 to Second Amended and Restated Credit Agreement dated November 19, 2019 by and among Kinergy Marketing LLC, Pacific Ag. Products, LLC, the parties thereto from time to time as lenders and Wells Fargo Bank, National Association					X
10.62	Second Amended and Restated Guarantee dated August 2, 2017 by Pacific Ethanol, Inc. in favor of Wells Fargo Bank, National Association, for and on behalf of the lenders	8-K	000-21467	10.2	08/08/2017	
10.63	Credit Agreement dated September 15, 2017 between Illinois Corn Processing, LLC, Compeer Financial, PCA and CoBank, ACB	8-K	000-21467	10.1	09/21/2017	
10.64	Amendment No. 1 to Credit Agreement and Waiver dated December 20, 2019 among Illinois Corn Processing, LLC, Compeer Financial, PCA and CoBank, ACB	S-1	333-235990	10.49	01/21/2020	
10.65	Amendment No. 1 to Credit Agreement dated as of March 20, 2020 by and among Illinois Corn Processing, LLC, Compeer Financial, PCA and CoBank, ACB	8-K	000-21467	10.1	03/26/2020	
10.66	Amended and Restated Term Note dated December 20, 2019 by Illinois Corn Processing, LLC in favor of Compeer Financial, PCA	S-1	333-235990	10.62	01/21/2020	
10.67	Amended and Restated Revolving Term Note dated December 20, 2019 by Illinois Corn Processing, LLC in favor of Compeer Financial, PCA	S-1	333-235990	10.63	01/21/2020	
10.68	Illinois Future Advance Real Estate Mortgage dated September 15, 2017 by Illinois Corn Processing, LLC in favor of CoBank, ACB	8-K	000-21467	10.4	09/21/2017	

Exhibit Number	Description*	Where located Form	File Number	Exhibit Number	Filing Date	Filed Herewith
10.69	Amendment to Illinois Future Advance Real Estate Mortgage dated December 20, 2019 by and between Illinois Corn Processing, LLC and Compeer Financial, PCA	S-1	333-235990	10.60	01/21/2020	
10.70	Security Agreement dated September 15, 2017 by Illinois Corn Processing, LLC in favor of CoBank, ACB	8-K	000-21467	10.5	09/21/2017	
10.71	First Amendment to Security Agreement dated December 20, 2019 by and between Illinois Corn Processing, LLC and CoBank, ACB for the benefit of Compeer Financial, PCA	S-1	333-235990	10.51	01/21/2020	
10.72	Guaranty by Illinois Corn Processing, LLC dated December 20, 2019 in favor of Compeer Financial, PCA and CoBank, ACB	S-1	333-235990	10.54	01/21/2020	
10.73	Pledge Agreement dated December 20, 2019 by and among Pacific Ethanol Central, LLC, Illinois Corn Processing, LLC and CoBank, ACB	S-1	333-235990	10.58	01/21/2020	
10.74	Security Agreement dated March 20, 2020 by Illinois Corn Processing, LLC in favor of Cortland Products Corp.	8-K	000-21467	10.4	03/26/2020	
10.75	Security Agreement effective as of March 20, 2020 by and between Pacific Ethanol, Inc. and CoBank, ACB	8-K	000-21467	10.11	03/26/2020	
10.76	Intercreditor Agreement dated as of March 20, 2020 by and among Cortland Products Corp., CoBank, ACB, Pacific Ethanol, Inc. and the grantors named therein	8-K	000-21467	10.12	03/26/2020	
10.77	Intercreditor Agreement dated as of March 20, 2020 between the Pekin Lenders and the ICP Lenders named therein	8-K	000-21467	10.13	03/26/2020	
10.78	At Market Issuance Sales Agreement dated as of September 19, 2019, by and between the Company and H.C. Wainwright & Co., LLC	8-K	000-21467	10.1	09/19/2019	
21.1	Subsidiaries of the Registrant	10-K	000-21467	21.1	03/15/2018	
23.1	Consent of Independent Registered Public Accounting Firm					X

Exhibit Number	Description*	Where located				Filed Herewith
		Form	File Number	Exhibit Number	Filing Date	
31.1	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification Required by Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1	Certification of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X
101.INS	Inline XBRL Instance Document					X
101.SCH	Inline XBRL Taxonomy Extension Schema					X
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase					X
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase					X
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase					X
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase					X

(#) A contract, compensatory plan or arrangement to which a director or executive officer is a party or in which one or more directors or executive officers are eligible to participate.

(*) Certain of the agreements filed as exhibits contain representations and warranties made by the parties thereto. The assertions embodied in such representations and warranties are not necessarily assertions of fact, but a mechanism for the parties to allocate risk. Accordingly, investors should not rely on the representations and warranties as characterizations of the actual state of facts or for any other purpose at the time they were made or otherwise.

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 on this 30th day of March, 2020.

PACIFIC ETHANOL, INC.

/s/ NEIL M. KOEHLER
Neil M. Koehler
President and Chief 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/ WILLIAM L. JONES William L. Jones	Chairman of the Board and Director	March 30, 2020
/s/ NEIL M. KOEHLER Neil M. Koehler	President, Chief Executive Officer (Principal Executive Officer) and Director	March 30, 2020
/s/ BRYON T. MCGREGOR Bryon T. McGregor	Chief Financial Officer (Principal Financial and Accounting Officer)	March 30, 2020
/s/ MICHAEL D. KANDRIS Michael D. Kandris	Chief Operating Officer and Director	March 30, 2020
/s/ TERRY L. STONE Terry L. Stone	Director	March 30, 2020
/s/ JOHN L. PRINCE John L. Prince	Director	March 30, 2020
/s/ DOUGLAS L. KIETA Douglas L. Kieta	Director	March 30, 2020
/s/ GILBERT E. NATHAN Gilbert E. Nathan	Director	March 30, 2020
/s/ DIANNE S. NURY Dianne S. Nury	Director	March 30, 2020

Description of Registrant's Securities
Registered Pursuant to Section 12 of the
Securities Exchange Act of 1934

The following is a description of the common stock of Pacific Ethanol, Inc., our only class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended. The description is a summary, does not purport to be complete and is subject to and qualified in its entirety by reference to Delaware law and to our certificate of incorporation, including our Certificate of Designations, Powers, Preferences and Rights of the Series A Preferred Stock, or Series A Certificate of Designations, our Certificate of Designations, Powers, Preferences and Rights of the Series B Preferred Stock, or Series B Certificate of Designations, and our bylaws, as amended, copies of which are filed as exhibits to our Annual Report on Form 10-K for the fiscal year ended December 31, 2019 and are incorporated by reference herein.

References to the following discussion to "we", "our" and "us" and similar references mean Pacific Ethanol, Inc., a Delaware corporation.

Authorized Capital Stock

Our authorized capital stock consists of 300,000,000 shares of common stock, $0.001 par value per share, 3,553,000 shares of non-voting common stock, $0.001 par value per share, and 10,000,000 shares of preferred stock, $0.001 par value per share, of which 1,684,375 shares are designated as Series A Cumulative Redeemable Convertible Preferred Stock, or Series A Preferred Stock, and 1,580,790 shares are designated as Series B Cumulative Convertible Preferred Stock, or Series B Preferred Stock.

Common Stock

All outstanding shares of our common stock are fully paid and nonassessable. The following summarizes the rights of holders of our common stock:

- a holder of common stock is entitled to one vote per share on all matters to be voted upon generally by the stockholders;
- subject to preferences that may apply to shares of preferred stock outstanding, the holders of common stock are entitled to receive lawful dividends as may be declared by our board;
- upon our liquidation, dissolution or winding up, the holders of shares of common stock are entitled to receive a pro rata portion of all our assets remaining for distribution after satisfaction of all our liabilities and the payment of any liquidation preference of any outstanding preferred stock;
- there are no redemption or sinking fund provisions applicable to our common stock; and
- there are no preemptive or conversion rights applicable to our common stock.

Non-Voting Common Stock

The rights and preferences of shares of our non-voting common are substantially the same in all respects to the rights and preferences of shares of our common stock, except that (i) the holders of shares of non-voting common stock are not be entitled to vote, (ii) shares of non-voting common stock are convertible into shares of common stock, and (iii) shares of non-voting common stock are not listed on any stock exchange, including The Nasdaq Capital Market.

The following summarizes the rights of holders of our non-voting common stock:

- a holder of non-voting common stock is not entitled to vote on any matter submitted to a vote of the stockholders, however such holders are entitled to prior notice of, and to attend and observe, all meetings of the stockholders;

- subject to preferences that may apply to shares of preferred stock issued and outstanding, the holders of non-voting common stock are entitled to receive lawful dividends as may be declared by the board on parity in all respects with the holders of common stock, provided that if the holders of common stock become entitled to receive a divided or distribution of shares of common stock, holders of non-voting common stock shall receive, in lieu of the shares of common stock, an equal number of shares of non-voting common stock;

- upon liquidation, dissolution or winding up Pacific Ethanol, the holders of shares of common stock and non-voting common stock will be entitled to receive a pro rata portion of all of our assets remaining for distribution after satisfaction of all our liabilities and the payment of any liquidation preference of any outstanding preferred stock;

- there are no redemption or sinking fund provisions applicable to our non-voting common stock; and

- there are no preemptive rights applicable to our non-voting common stock.

Conversion

Each share of non-voting common stock is convertible at the option of the holder into one share of our common stock at any time. The conversion price is subject to customary adjustment for stock splits, stock combinations, stock dividends, mergers, consolidations, reorganizations, share exchanges, reclassifications, distributions of assets and issuances of convertible securities, and the like.

No shares of non-voting common stock may be converted into common stock if the holder of such shares or any of its affiliates would, after such conversion, beneficially own in excess of 9.99% of our outstanding shares of common stock (sometimes referred to as the Blocker). The Blocker applicable to the conversion of shares of non-voting common stock may be raised or lowered at the option of the holder to any percentage not in excess of 9.99%, except that any increase will only be effective upon 61-days' prior notice to us.

When shares of non-voting common stock cease to be held by the initial holder or an affiliate of an initial holder of such shares, such shares shall automatically convert into one share of our common stock.

Preferred Stock

Our board is authorized to issue from time to time, in one or more designated series, any or all of our authorized but unissued shares of preferred stock with dividend, redemption, conversion, exchange, voting and other provisions as may be provided in that particular series. The issuance need not be approved by our common stockholders and need only be approved by holders, if any, of our Series A Preferred Stock and Series B Preferred Stock if, as described below, the shares of preferred stock to be issued have preferences that are senior to or on parity with those of our Series A Preferred Stock and Series B Preferred Stock.

The rights of the holders of our common stock, Series A Preferred Stock and Series B Preferred Stock will be subject to, and may be adversely affected by, the rights of the holders of any preferred stock that may be issued in the future. Issuance of a new series of preferred stock, while providing desirable flexibility in connection with possible acquisitions and other corporate purposes, could have the effect of entrenching our board and making it more difficult for a third-party to acquire, or discourage a third-party from acquiring, a majority of our outstanding voting stock. The following is a summary of the terms of the Series A Preferred Stock and the Series B Preferred Stock.

Series B Preferred Stock

The rights and preferences of the Series B Preferred Stock are outlined below.

Rank and Liquidation Preference

Shares of Series B Preferred Stock rank prior to our common stock as to distribution of assets upon liquidation events, which include a liquidation, dissolution or winding up of Pacific Ethanol, whether voluntary or involuntary. The liquidation preference of each share of Series B Preferred Stock is equal to $19.50, or the Series B Issue Price, plus any accrued but unpaid dividends on the Series B Preferred Stock. If assets remain after the amounts are distributed to the holders of Series B Preferred Stock, the assets shall be distributed pro rata, on an as-converted to common stock basis, to the holders of our common stock and Series B Preferred Stock. The written consent of a majority of the outstanding shares of Series B Preferred Stock is required before we can authorize the issuance of any class or series of capital stock that ranks senior to or on parity with shares of Series B Preferred Stock.

Dividend Rights

As long as shares of Series B Preferred Stock remain outstanding, each holder of shares of Series B Preferred Stock are entitled to receive, and shall be paid quarterly in arrears, in cash out of funds legally available therefor, cumulative dividends, in an amount equal to 7.0% of the Series B Issue Price per share per annum with respect to each share of Series B Preferred Stock. The dividends may, at our option, be paid in shares of Series B Preferred Stock valued at the Series B Issue Price. In the event we declare, order, pay or make a dividend or other distribution on our common stock, other than a dividend or distribution made in common stock, the holders of the Series B Preferred Stock shall be entitled to receive with respect to each share of Series B Preferred Stock held, any dividend or distribution that would be received by a holder of the number of shares of our common stock into which the Series B Preferred Stock is convertible on the record date for the dividend or distribution.

The Series B Preferred Stock ranks pari passu with respect to dividends and liquidation rights with the Series A Preferred Stock and pari passu with respect to any class or series of capital stock specifically ranking on parity with the Series B Preferred Stock.

Optional Conversion Rights

Each share of Series B Preferred Stock is convertible at the option of the holder into shares of our common stock at any time. Each share of Series B Preferred Stock is convertible into the number of shares of common stock as calculated by multiplying the number of shares of Series B Preferred Stock to be converted by the Series B Issue Price, and dividing the result thereof by the conversion price. The conversion price was initially $682.50 per share of Series B Preferred Stock, subject to adjustment; therefore, each share of Series B Preferred Stock was initially convertible into approximately 0.03 shares of common stock, which number is equal to the quotient of the Series B Issue Price of $19.50 divided by the initial conversion price of $682.50 per share of Series B Preferred Stock. Accrued and unpaid dividends are to be paid in cash upon any conversion.

Mandatory Conversion Rights

In the event of a transaction which will result in an internal rate of return to holders of Series B Preferred Stock of 25% or more, each share of Series B Preferred Stock shall, concurrently with the closing of the Transaction, be converted into shares of common stock. A "Transaction" is defined as a sale, lease, conveyance or disposition of all or substantially all of our capital stock or assets or a merger, consolidation, share exchange, reorganization or other transaction or series of related transactions (whether involving us or a subsidiary) in which the stockholders immediately prior to the transaction do not retain a majority of the voting power in the surviving entity. Any mandatory conversion will be made into the number of shares of common stock determined on the same basis as the optional conversion rights above. Accrued and unpaid dividends are to be paid in cash upon any conversion.

No shares of Series B Preferred Stock will be converted into common stock on a mandatory basis unless at the time of the proposed conversion we have on file with the SEC an effective registration statement with respect to the shares of common stock issued or issuable to the holders on conversion of the Series B Preferred Stock then issued or issuable to the holders and the shares of common stock are eligible for trading on The Nasdaq Stock Market (or approved by and listed on a stock exchange approved by the holders of 66 2/3% of the then outstanding shares of Series B Preferred Stock).

Conversion Price Adjustments

The conversion price is subject to customary adjustment for stock splits, stock combinations, stock dividends, mergers, consolidations, reorganizations, share exchanges, reclassifications, distributions of assets and issuances of convertible securities, and the like. The conversion price is also subject to downward adjustments if we issue shares of common stock or securities convertible into or exercisable for shares of common stock, other than specified excluded securities, at per share prices less than the then effective conversion price. In this event, the conversion price shall be reduced to the price determined by dividing (i) an amount equal to the sum of (a) the number of shares of common stock outstanding immediately prior to the issue or sale multiplied by the then existing conversion price, and (b) the consideration, if any, received by us upon such issue or sale, by (ii) the total number of shares of common stock outstanding immediately after the issue or sale. For purposes of determining the number of shares of common stock outstanding as provided in clauses (i) and (ii) above, the number of shares of common stock issuable upon conversion of all outstanding shares of Series B Preferred Stock, and the exercise of all outstanding securities convertible into or exercisable for shares of common stock, will be deemed to be outstanding.

The conversion price will not be adjusted in the case of the issuance or sale of the following: (i) securities issued to our employees, officers or directors or options to purchase common stock granted by us to our employees, officers or directors under any option plan, agreement or other arrangement duly adopted by us and the grant of which is approved by the compensation committee of our board; (ii) the Series B Preferred Stock and any common stock issued upon conversion of the Series B Preferred Stock; (iii) securities issued on the conversion of any convertible securities, in each case, outstanding on the date of the filing of the Series B Certificate of Designations; and (iv) securities issued in connection with a stock split, stock dividend, combination, reorganization, recapitalization or other similar event for which adjustment is made in accordance with the foregoing.

Voting Rights and Protective Provisions

The Series B Preferred Stock votes together with all other classes and series of our voting stock as a single class on all actions to be taken by our stockholders. Each share of Series B Preferred Stock entitles the holder thereof to the number of votes equal to the number of shares of common stock into which each share of Series B Preferred Stock is convertible on all matters to be voted on by our stockholders, however, the number of votes for each share of Series B Preferred Stock may not exceed the number of shares of common stock into which each share of Series B Preferred Stock would be convertible if the applicable conversion price were $682.50 (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the shares).

We are not permitted, without first obtaining the written consent of the holders of at least a majority of the then outstanding shares of Series B Preferred Stock voting as a separate class, to:

- increase or decrease the total number of authorized shares of Series B Preferred Stock or the authorized shares of our common stock reserved for issuance upon conversion of the Series B Preferred Stock (except as otherwise required by our certificate of incorporation or the Series B Certificate of Designations);

- increase or decrease the number of authorized shares of preferred stock or common stock (except as otherwise required by our certificate of incorporation or the Series B Certificate of Designations);

- alter, amend, repeal, substitute or waive any provision of our certificate of incorporation or our bylaws, so as to affect adversely the voting powers, preferences or other rights, including the liquidation preferences, dividend rights, conversion rights, redemption rights or any reduction in the stated value of the Series B Preferred Stock, whether by merger, consolidation or otherwise;

- authorize, create, issue or sell any securities senior to or on parity with the Series B Preferred Stock or securities that are convertible into securities senior to or on parity the Series B Preferred Stock with respect to voting, dividend, liquidation or redemption rights, including subordinated debt;

- authorize, create, issue or sell any securities junior to the Series B Preferred Stock other than common stock or securities that are convertible into securities junior to Series B Preferred Stock other than common stock with respect to voting, dividend, liquidation or redemption rights, including subordinated debt;

- authorize, create, issue or sell any additional shares of Series B Preferred Stock other than the Series B Preferred Stock initially authorized, created, issued and sold, Series B Preferred Stock issued as payment of dividends and Series B Preferred Stock issued in replacement or exchange therefore;

- engage in a Transaction that would result in an internal rate of return to holders of Series B Preferred Stock of less than 25%;

- declare or pay any dividends or distributions on our capital stock in a cumulative amount in excess of the dividends and distributions paid on the Series B Preferred Stock in accordance with the Series B Certificate of Designations;

- authorize or effect the voluntary liquidation, dissolution, recapitalization, reorganization or winding up of our business; or

- purchase, redeem or otherwise acquire any of our capital stock other than Series B Preferred Stock, or any warrants or other rights to subscribe for or to purchase, or any options for the purchase of, our capital stock or securities convertible into or exchangeable for our capital stock.

Reservation of Shares

We initially were required to reserve 3,000,000 shares of common stock for issuance upon conversion of shares of Series B Preferred Stock and are required to maintain a sufficient number of reserved shares of common stock to allow for the conversion of all shares of Series B Preferred Stock.

Series A Preferred Stock

The rights and preferences of the Series A Preferred Stock are substantially the same as the Series B Preferred Stock, except as follows:

- the Series A Issue Price, on which the Series A Preferred Stock liquidation preference is based, is $16.00 per share;

- dividends accrue and are payable at a rate per annum of 5.0% of the Series A Issue Price per share;

- each share of Series A Preferred Stock is convertible at a rate equal to the Series A Issue Price divided by an initial conversion price of $840.00 per share;

- holders of the Series A Preferred Stock have a number of votes equal to the number of shares of common stock into which each share of Series A Preferred Stock is convertible on all matters to be voted on by our stockholders, voting together as a single class; provided, however, that the number of votes for each share of Series A Preferred Stock shall not exceed the number of shares of common stock into which each share of Series A Preferred Stock would be convertible if the applicable conversion price were $943.95 (subject to appropriate adjustment for stock splits, stock dividends, combinations and other similar recapitalizations affecting the shares); and

- we are not permitted, without first obtaining the written consent of the holders of at least a majority of the then outstanding shares of Series A Preferred Stock voting as a separate class, to:

- change the number of members of our board to be more than nine members or less than seven members;

- effect any material change in our industry focus or that of our subsidiaries, considered on a consolidated basis;

- authorize or engage in, or permit any subsidiary to authorize or engage in, any transaction or series of transactions with one of our or our subsidiaries' current or former officers, directors or members with value in excess of $100,000, excluding compensation or the grant of options approved by our board; or

- authorize or engage in, or permit any subsidiary to authorize or engage in, any transaction with any entity or person that is affiliated with any of our or our subsidiaries' current or former directors, officers or members, excluding any director nominated by the initial holder of the Series B Preferred Stock.

Preemptive Rights

Holders of our Series A Preferred Stock have preemptive rights to purchase a pro rata portion of all capital stock or securities convertible into capital stock that we issue, sell or exchange, or agree to issue, sell or exchange, or reserve or set aside for issuance, sale or exchange. We must deliver each holder of our Series A Preferred Stock a written notice of any proposed or intended issuance, sale or exchange of capital stock or securities convertible into capital stock which must include a description of the securities and the price and other terms upon which they are to be issued, sold or exchanged together with the identity of the persons or entities (if known) to which or with which the securities are to be issued, sold or exchanged, and an offer to issue and sell to or exchange with the holder of the Series A Preferred Stock the holder's pro rata portion of the securities, and any additional amount of the securities should the other holders of Series A Preferred Stock subscribe for less than the full amounts for which they are entitled to subscribe. In the case of a public offering of our common stock for a purchase price of at least $12.00 per share and a total gross offering price of at least $50 million, the preemptive rights of the holders of the Series A Preferred Stock shall be limited to 50% of the securities. Holders of our Series A Preferred Stock have a 30 day period during which to accept the offer. We will have 90 days from the expiration of this 30 day period to issue, sell or exchange all or any part of the securities as to which the offer has not been accepted by the holders of the Series A Preferred Stock, but only as to the offerees or purchasers described in the offer and only upon the terms and conditions that are not more favorable, in the aggregate, to the offerees or purchasers or less favorable to us than those contained in the offer.

The preemptive rights of the holders of the Series A Preferred Stock do not apply to any of the following securities: (i) securities issued to our employees, officers or directors or options to purchase common stock granted by us to our employees, officers or directors under any option plan, agreement or other arrangement duly adopted by us and the grant of which is approved by the compensation committee of our board; (ii) the Series A Preferred Stock and any common stock issued upon conversion of the Series A Preferred Stock; (iii) securities issued on the conversion of any convertible securities, in each case, outstanding on the date of the filing of the Series A Certificate of Designations; (iv) securities issued in connection with a stock split, stock dividend, combination, reorganization, recapitalization or other similar event for which adjustment is made in accordance with the Series A Certificate of Designations; and (v) the issuance of our securities issued for consideration other than cash as a result of a merger, consolidation, acquisition or similar business combination by us approved by our board.

Anti-Takeover Effects of Delaware Law and Our Certificate of Incorporation and Bylaws

A number of provisions of Delaware law, our certificate of incorporation and our bylaws contain provisions that could have the effect of delaying, deferring and discouraging another party from acquiring control of Pacific Ethanol. These provisions, which are summarized below, are expected to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of Pacific Ethanol to first negotiate with our board. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquiror outweigh the disadvantages of discouraging a proposal to acquire Pacific Ethanol because negotiation of these proposals could result in an improvement of their terms. However, the existence of these provisions also could limit the price that investors might be willing to pay for our securities.

Undesignated Preferred Stock

The ability to authorize undesignated preferred stock makes it possible for our board to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of Pacific Ethanol.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

Our bylaws provide that a stockholder seeking to bring business before an annual meeting of stockholders, or to nominate candidates for election as directors, must provide timely notice of such stockholder’s intention in writing. To be timely, a stockholder nominating individuals for election to the board or proposing business must provide advanced notice to Pacific Ethanol (a) not later than the close of business on the 90th day, nor earlier than the close of business on the 120th day in advance of the anniversary of the previous year’s annual meeting if such meeting is to be held on a day which is not more than thirty (30) days in advance of the anniversary of the previous year’s annual meeting or not later than seventy (70) days after the anniversary of the previous year’s annual meeting, and (b) with respect to any other annual meeting of stockholders, the close of business on the 10th day following the date of public disclosure of the date of such meeting. In the event we call a special meeting of stockholders for the purpose of electing one or more directors to the board, any stockholder entitled to vote in such election of directors may nominate a person or persons (as the case may be) for election to such position(s) as specified in our notice of meeting, if the stockholder’s notice is delivered to us not later than the close of business on the 90th day prior to such special meeting and not earlier than the close of business on the later of the 120th day prior to such special meeting or the 10th day following the date of public disclosure of the date of the special meeting and of the nominees proposed by the board to be elected at such meeting.

Delaware Anti-Takeover Statute

We are subject to the provisions of Section 203 of the Delaware General Corporation Law (sometimes referred to as Section 203) regulating corporate takeovers. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging, under specified circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;

- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the number of shares of voting stock outstanding (but not the outstanding voting stock owned by the stockholder) (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- on or subsequent to the date of the transaction, the business combination is approved by the board and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66-2/3% of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a business combination includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. An interested stockholder is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation's outstanding voting securities. We expect the existence of this provision to have an anti-takeover effect with respect to transactions the board does not approve in advance. We also anticipate that Section 203 may also discourage attempts that might result in a premium over the market price for the shares of our common stock held by stockholders.

The provisions of Delaware law, our certificate of incorporation and our bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

Choice of Forum

Our bylaws provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the corporation (ii) any action asserting a claim of breach of a fiduciary duty owed by any of director, officer or other employee of the corporation to the corporation or the corporation's stockholders, (iii) any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law, or (iv) any action asserting a claim governed by the internal affairs doctrine.

Transfer Agent and Registrar

American Stock Transfer & Trust Company, LLC serves as the transfer agent and registrar for our common stock.

Listing

Our common stock is listed on The Nasdaq Capital Market under the symbol "PEIX."

AMENDMENT NO. 3
TO
SECOND AMENDED AND RESTATED CREDIT AGREEMENT

This AMENDMENT NO. 3 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT (this "**Amendment**") is entered into as of November 19, 2019, by and among WELLS FARGO BANK, NATIONAL ASSOCIATION, in its capacity as administrative agent (in such capacity, "**Agent**") for each member of the Lender Group and the Bank Product Provider (as each such term is defined in the Credit Agreement referred to below), KINERGY MARKETING LLC ("**Kinergy**"), and PACIFIC AG. PRODUCTS, LLC ("**Pacific Ag**" and together with Kinergy, each individually, a "**Borrower**" and collectively, the "**Borrowers**").

WHEREAS, Borrowers, Agent and Lenders (as defined below) have entered into certain financing arrangements as set forth in (a) the Second Amended and Restated Credit Agreement, dated as of August 2, 2017, by and among Agent, the financial institutions from time to time party thereto as lenders (collectively, the "**Lenders**") and Borrowers (as amended, restated, renewed, extended, supplemented, substituted and otherwise modified from time to time, the "**Credit Agreement**") and (b) the Loan Documents (as defined in the Credit Agreement);

WHEREAS, Borrowers, Agent and Lenders have agreed to amend and modify certain provisions of Credit Agreement, subject to the terms and conditions of this Amendment.

NOW, THEREFORE, upon the mutual agreements and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. Definitions.

(a) Additional Definitions. The Credit Agreement is hereby amended to add the following new definition thereto:

> ""Amendment No. 3 Effective Date" shall mean November 19, 2019."

(b) Interpretation. Capitalized terms used and not defined in this Amendment shall have the respective meanings given them in the Credit Agreement.

2. Amendments.

(a) Special Period. The definition of "Special Period" set forth in Section 1.1 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

> ""Special Period" shall mean the period through and including the earlier of (a) December 15, 2019 and (b) the second (2^{nd}) Business Day following written notice from Agent to Administrative Borrower of the election of Agent to terminate the Special Period."

(b) Events of Default - Default Under Other Agreements. Section 8.6 of the Credit Agreement is hereby deleted in its entirety and the following substituted therefor:

> "8.6 **Default Under Other Agreements.** If there is (a) a default in one or more agreements to which a Loan Party or any of its Subsidiaries, or Parent, is a party with one or more third Persons relative to a Loan Party's or any of its Subsidiaries', or Parent's, Indebtedness involving an aggregate amount of $1,000,000 or more, and such default (i) occurs at the final maturity of the obligations thereunder, or (ii) results in a right by such third Person, irrespective of whether exercised, to accelerate the maturity of such Loan Party's or its Subsidiary's, or Parent's, obligations thereunder, or (b) a default in or an involuntary early termination of one or more Hedge Agreements to which a Loan Party or any of its Subsidiaries, or Parent, is a party involving an aggregate amount of $1,000,000 or more, or (c) a default under any Material Contract, which default continues for more than the applicable cure period, if any, with respect thereto and/or is not waived in writing by the other parties thereto (and, for each of the foregoing with respect to Parent only, could reasonably be expected to result in a Material Adverse Effect) or (d) a default under the Pekin Ethanol Credit Facility;"

3. Additional Representation. In addition to the continuing representations, warranties and covenants at any time made by Borrowers to Agent and Lenders pursuant to the Credit Agreement, and the other Loan Documents, Borrowers hereby jointly and severally represent, warrant and covenant with and to Agent and Lenders that, as of the date of this Amendment and after giving effect hereto, no known Default or Event of Default exists or has occurred and is continuing.

4. Release. In consideration of the agreements of Agent and Lenders contained herein and the making of loans by or on behalf of Agent and Lenders to Borrowers pursuant to the Credit Agreement, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, each Borrower on behalf of itself and its successors, assigns, and other legal representatives (the "**Releasing Parties**"), hereby, jointly and severally, absolutely, unconditionally and irrevocably releases, remises and forever discharges Agent and each Lender, and their present and former shareholders, affiliates, subsidiaries, divisions, predecessors, directors, officers, attorneys, employees, agents and other representatives and their respective successors and assigns (Agent, each Lender and all such other parties being hereinafter referred to collectively as the "**Releasees**" and individually as a "**Releasee**"), of and from all demands, actions, causes of action, suits, covenants, contracts, controversies, agreements, promises, sums of money, accounts, bills, reckonings, damages and any and all other claims, counterclaims, defenses, rights of set-off, demands and liabilities whatsoever (individually, a "**Claim**" and collectively, "**Claims**") of every name and nature, known or unknown, suspected or unsuspected, both at law and in equity, whether liquidated or unliquidated, matured or unmatured, asserted or unasserted, fixed or contingent, foreseen or unforeseen and anticipated or unanticipated, which any Releasing Party may now or hereafter own, hold, have or claim to have against the Releasees or any of them for, upon, or by reason of any nature, cause or thing whatsoever which arises at any time on or prior to the day and date of this Amendment, in relation to, or in any way in connection with the Credit Agreement, as amended and supplemented through the date hereof, this Amendment and the other Loan Documents. Each Releasing Party understands, acknowledges and agrees that the release set forth above may be pleaded as a full and complete defense and may be used as a basis for an injunction against any action, suit or other proceeding which may be instituted, prosecuted or attempted in breach of the provisions of such

release.

It is the intention of the Releasing Parties that the above release shall be effective as a full and final release of each and every matter specifically and generally referred to above clause (a). Each Releasing Party acknowledges and represents that it has been advised by independent legal counsel with respect to the agreements contained herein and with respect to the provisions of California Civil Code Section 1542, which provides as follows: "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS THAT THE CREDITOR OR RELEASING PARTY DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, AND THAT IF KNOWN BY HIM OR HER WOULD HAVE MATERIALLY AFFECTED THE SETTLEMENT WITH THE DEBTOR OR RELEASEE." Each Releasing Party, being aware of said code section, expressly waives on its own behalf and on behalf of those for which such Releasing Party is giving the release, any and all rights either may have thereunder, as well as under any other statute or common law principle of similar effect, with respect to any of the matters released herein. This release shall act as a release of all included claims, rights and causes of action, whether such claims are currently known, unknown, foreseen or unforeseen and regardless of any present lack of knowledge as to such claims. Each Releasing Party understands and acknowledges the significance and consequence of this waiver of California Civil Code Section 1542, and hereby assumes full responsibility for any injuries, damages, losses or liabilities released herein.

5. Conditions to Effectiveness. The effectiveness of this Amendment shall be subject to the receipt by Agent of an original (or electronic copy) of this Amendment (and all exhibits hereto) duly authorized, executed and delivered by Borrowers and Lenders.

6. Effect of this Amendment. Except as modified pursuant hereto, no other changes or modifications to the Credit Agreement are intended or implied and in all other respects the Credit Agreement is hereby specifically ratified, restated and confirmed by all parties hereto as of the date hereof. To the extent of conflict between the terms of this Amendment, on the one hand, and Credit Agreement, on the other hand, the terms of this Amendment shall control.

7. Further Assurances. Borrowers shall execute and deliver such additional documents and take such additional action as may be reasonably requested by Agent to effectuate the provisions and purposes of this Amendment.

8. Binding Effect. This Amendment shall be binding upon and inure to the benefit of each of the parties hereto and their respective successors and assigns.

9. Governing Law. The rights and obligations hereunder of each of the parties hereto shall be governed by and interpreted and determined in accordance with the internal laws of the State of California (without giving effect to principles of conflict of laws).

10. Counterparts. This Amendment may be signed in counterparts, each of which shall be an original and all of which taken together constitute one agreement. In making proof of this Amendment, it shall not be necessary to produce or account for more than one counterpart signed by the party to be charged. Delivery of an executed counterpart of this Amendment electronically or by facsimile shall be effective as delivery of an original executed counterpart of this Amendment.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered by their authorized officers as of the day and year first above written.

BORROWERS:

KINERGY MARKETING LLC,
as a Borrower

By: ______________________
Name: Bryon T. McGregor
Title: CFO

PACIFIC AG. PRODUCTS, LLC,
as a Borrower

By: ______________________
Name: Bryon T. McGregor
Title: CFO

AGENT AND LENDER:

WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Agent and sole Lender

By: ______________________
Name: Carlos Valles
Title: Vice President

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in Registration Statements (Nos. 333-137663, 333-169002, 333-176540, 333-185884, 333-189478, 333-196876, 333-212070, 333-225622 and 333-234613) on Form S-8 and (No. 333-217323) on Form S-3 and (No. 333-201879) on Form S-4 and (No. 333-235990) on Form S-1 of Pacific Ethanol Inc. of our reports dated March 30, 2020, relating to the consolidated financial statements of Pacific Ethanol, Inc., appearing in this Annual Report on Form 10-K of Pacific Ethanol, Inc. for the year ended December 31, 2019.

/s/ RSM US LLP

Sioux Falls, South Dakota
March 30, 2020

EXHIBIT 31.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Neil M. Koehler, certify that:

1. I have reviewed this Annual Report on Form 10-K of Pacific Ethanol, Inc.;

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

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

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

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

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

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

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

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

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

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

/S/ NEIL M. KOEHLER
Neil M. Koehler
President and Chief Executive Officer
(Principal Executive Officer)

Date: March 30, 2020

EXHIBIT 31.2

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Bryon T. McGregor, certify that:

1. I have reviewed this Annual Report on Form 10-K of Pacific Ethanol, Inc.;

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

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

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

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

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

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

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

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

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

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

/S/ BRYON T. MCGREGOR
Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

Date: March 30, 2020

EXHIBIT 32.1

CERTIFICATION OF
CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of Pacific Ethanol, Inc. (the "Company") for the period ended December 31, 2019 (the "Report"), the undersigned hereby certify in their capacities as Chief Executive Officer and Chief Financial Officer of the Company, respectively, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

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

Dated: March 30, 2020

By: /S/ NEIL M. KOEHLER
Neil M. Koehler
President and Chief Executive Officer
(Principal Executive Officer)

Dated: March 30, 2020

By: /S/ BRYON T. MCGREGOR
Bryon T. McGregor
Chief Financial Officer
(Principal Financial Officer)

A signed original of this written statement required by Section 906, or other document authenticating, acknowledging, or otherwise adopting the signatures that appear in typed form within the electronic version of this written statement required by Section 906, has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.