

Gevo, Inc.
Form 424B5
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The information in this prospectus supplement is not complete and may be changed. This prospectus supplement and the accompanying prospectus are not an offer to sell these securities and are not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

**PROSPECTUS SUPPLEMENT (Subject to Completion)
To Prospectus dated May 15, 2013**

DATED DECEMBER 7, 2015

Gevo, Inc.

**Series A Units consisting of One Share of Common Stock and
Purchase One Share of Common Stock**

Series D Warrants to

**Series B Units consisting of a Pre-Funded Series E Warrant to Purchase One Share of Common
Stock and Series D Warrants to Purchase**

One Share of Common Stock

Pursuant to this prospectus supplement and the accompanying prospectus, we are offering for sale Series A units, with each Series A unit consisting of one share of our common stock and Series D warrants to purchase one share of our common stock. Each full Series D warrant gives the warrant holder the right to purchase one share of our common stock. Each Series A unit will be sold at a negotiated price of \$ per unit. The Series A units will not be issued or certificated. The shares of common stock and the warrants are immediately separable and will be issued separately, but will be purchased together in this offering.

We are also offering to those purchasers whose purchase of Series A units in this offering would result in the purchaser, together with its affiliates and certain related parties, beneficially owning more than 4.99% of our outstanding common stock following the consummation of this offering, the opportunity to purchase, in lieu of Series A units that would otherwise result in ownership in excess of 4.99% of our outstanding common stock,

Series B units. Each Series B unit will consist of one pre-funded Series E warrant to purchase one share of our common stock and Series D warrants to purchase one share of our common stock. Each full pre-funded Series E warrant gives the warrant holder the right to purchase one share of common stock and each full Series D warrant gives the warrant holder the right to purchase one share of common stock. Each Series B unit will be sold at a negotiated price of \$ per unit. The Series B units will not be issued or certificated. The warrants are immediately separable and will be issued separately, but will be purchased together in this offering.

The shares of our common stock issuable from time to time upon exercise of the pre-funded Series E warrants and the Series D warrants are also being offered pursuant to this prospectus supplement and the accompanying prospectus.

The Series D warrants will be exercisable during the period commencing on June , 2016 and ending on December , 2020, the expiration date of the Series D warrants, at an initial exercise price of \$ per share of common stock. The pre-funded Series E warrants will be exercisable during the period commencing on the date of original issuance and ending on December , 2016, the expiration date of the pre-funded Series E warrants, at an exercise price of \$ per share of common stock. The exercise price of \$ per share will be pre-paid, except for a nominal exercise price of \$0.01 per share, upon issuance of the pre-funded Series E warrants and, consequently, no additional payment or other consideration (other than the nominal exercise price of \$0.01 per share) will be required to be delivered to the Company by the holder upon exercise. See Description of Our Common Stock and Description of Our Warrants for more information on the securities offered hereby.

Our common stock is traded on the NASDAQ Capital Market under the symbol GEVO. On December 4, 2015, the last reported sale price of our common stock on the NASDAQ Capital Market was \$1.29 per share. The warrants are not and will not be listed for trading on the NASDAQ Capital Market, or any other securities exchange.

Investing in our securities involves a high degree of risk. Before buying any securities, you should review carefully the risks and uncertainties described under the heading Risk Factors beginning on page S-14 of this prospectus supplement, on page 5 of the accompanying prospectus and in the documents incorporated by reference into this prospectus supplement.

Neither the U.S. Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

	Per Series A Unit	Per Series B Unit	Total
Public offering price	\$	\$	\$
Underwriting discount ⁽¹⁾	\$	\$	\$
Proceeds, before expenses, to Gevo, Inc.	\$	\$	\$

⁽¹⁾ We have also agreed to reimburse the underwriter for certain out-of-pocket-expenses incurred by it. See Underwriting for more information on expense reimbursement.

Delivery of the shares of common stock and warrants is expected to be made on or about December , 2015.

Oppenheimer & Co.

The date of this prospectus supplement is December , 2015.

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ABOUT THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus are part of a registration statement that we filed with the U.S. Securities and Exchange Commission (the SEC) utilizing a shelf registration process. This document is in two parts. The first part is this prospectus supplement, including the documents incorporated by reference herein, which describes the specific terms of this offering. The second part, the accompanying prospectus, including the documents incorporated by reference therein, provides more general information. Generally, when we refer to the prospectus, we are referring to both parts of this document combined. We urge you to carefully read this prospectus supplement and the accompanying prospectus, and the documents incorporated by reference herein and therein, before buying any of the securities being offered under this prospectus supplement. This prospectus supplement may add or update information contained in the accompanying prospectus and the documents incorporated by reference therein. To the extent that any statement we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein that were filed before the date of this prospectus supplement, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

You should rely only on the information contained in this prospectus supplement and the accompanying prospectus or incorporated by reference herein or therein. We have not authorized anyone to provide you with different information. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus supplement and the accompanying prospectus. You should not rely on any unauthorized information or representation. This prospectus supplement is an offer to sell only the securities offered hereby, and only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus supplement and the accompanying prospectus is accurate only as of the date on the front of the applicable document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the date of delivery of this prospectus supplement or the accompanying prospectus, or the date of any sale of a security.

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus to the Company, we, us, our, and Gevo refer to Gevo, Inc., a Delaware corporation, and its consolidated subsidiaries.

CONVENTIONS THAT APPLY TO THIS PROSPECTUS SUPPLEMENT

This prospectus supplement and the accompanying prospectus contain estimates and other information concerning our target markets that are based on industry publications, surveys and forecasts, including those generated by the U.S. Energy Information Association (the EIA), the International Energy Agency (the IEA), and Nexant, Inc. (Nexant). Certain target market sizes presented in this prospectus supplement have been calculated by us (as further described below) based on such information. This information involves a number of assumptions and limitations and you are cautioned not to give undue weight to this information. Please read the section of this prospectus supplement entitled Cautionary Note Regarding Forward-Looking Statements. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section entitled Risk Factors beginning on page S-14. These and other factors could cause actual results to differ materially from those expressed in these publications, surveys and forecasts.

With respect to calculation of product market volumes:

product market volumes are provided solely to show the magnitude of the potential markets for isobutanol and the products derived from it. They are not intended to be projections of our actual isobutanol production or sales;

product market volume calculations for fuels markets are based on data available for the year 2011 (the most current data available to the Company from the IEA);

product market volume calculations for chemicals markets are based on data available for the year 2012 (the most current data available to the Company from Nexant); and

volume data with respect to target market sizes is derived from data included in various industry publications, surveys and forecasts generated by the EIA, the IEA and Nexant.

We have converted these market sizes into volumes of isobutanol as follows:

we calculated the size of the market for isobutanol as a gasoline blendstock and oxygenate by multiplying the world gasoline market volume by an estimated 12.5% by volume isobutanol blend ratio;

we calculated the size of the specialty chemicals markets by substituting volumes of isobutanol equivalent to the volume of products currently used to serve these markets;

we calculated the size of the petrochemicals and hydrocarbon fuels markets by calculating the amount of isobutanol that, if converted into the target products at theoretical yield, would be needed to fully serve these markets (in substitution for the volume of products currently used to serve these markets); and

for consistency in measurement, where necessary we converted all market sizes into gallons.

Conversion into gallons for the fuels markets is based upon fuel densities identified by Air BP Ltd. and the American Petroleum Institute.

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PROSPECTUS SUPPLEMENT SUMMARY

This summary is not complete and does not contain all of the information that you should consider before investing in the securities offered by this prospectus. You should read this summary together with the entire prospectus supplement and the accompanying prospectus, including our financial statements, the notes to those financial statements and the other documents that are incorporated by reference in this prospectus supplement and the accompanying prospectus, before making an investment decision. See the Risk Factors section of this prospectus supplement beginning on page S-14 for a discussion of the risks involved in investing in our securities.

Gevo, Inc.

Our Business

We are a renewable chemicals and next generation biofuels company. Our strategy is to commercialize biobased alternatives to petroleum-based products to allow for the optimization of fermentation facilities assets, with the ultimate goal of maximizing cash flows from the operation of those assets. We have developed proprietary technology that uses a combination of synthetic biology, metabolic engineering, chemistry and chemical engineering to focus primarily on the production of isobutanol, as well as related products from renewable feedstocks. Isobutanol is a four-carbon alcohol that can be sold directly for use as a specialty chemical in the production of solvents, paints and coatings or as a value-added gasoline blendstock. Isobutanol can also be converted into butenes using dehydration chemistry deployed in the refining and petrochemicals industries today. The convertibility of isobutanol into butenes is important because butenes are primary hydrocarbon building blocks used in the production of hydrocarbon fuels, lubricants, polyester, rubber, plastics, fibers and other polymers. We believe that the products derived from isobutanol have potential applications in substantially all of the global hydrocarbon fuels market, representing a potential market for isobutanol of approximately 1,000 billion gallons per year (BGPY), and in approximately 40% of the global petrochemicals market, representing a potential market for isobutanol of approximately 70 BGPY. When combined with a potential specialty chemical market for isobutanol of approximately 1.2 BGPY, we believe that the potential global market for isobutanol is greater than 1,000 BGPY.

We believe that products derived from our isobutanol will be drop-in products, which means that our customers will be able to replace petroleum-based intermediate products with renewable isobutanol-based intermediate products without modification to their equipment or production processes. The final products produced from our renewable isobutanol-based intermediate products should be chemically and physically identical to those produced from petroleum-based intermediate products, except that they will contain carbon from renewable sources. Customer interest in our renewable isobutanol is primarily driven by our production route, which we believe will be cost-efficient, and our renewable isobutanol's potential to serve as a cost-effective, environmentally sensitive alternative to the petroleum-based intermediate products that they currently use. We believe that at every step of the value chain, renewable products that are chemically identical to the incumbent petrochemical products will have lower market adoption hurdles in contrast with other bioindustrial products because the infrastructure and applications for such products already exist. In addition, we believe that products made from biobased isobutanol will be subject to less raw material cost volatility than the petroleum-based products in use today because of the lower historical cost volatility of agricultural feedstocks compared to oil.

In order to produce and sell isobutanol made from renewable sources, we have developed the Gevo Integrated Fermentation Technology® (GIFT®), an integrated technology platform for the efficient production and separation of renewable isobutanol. GIFT® consists of two components, proprietary biocatalysts that convert sugars derived from multiple renewable feedstocks into isobutanol through fermentation, and a proprietary

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separation unit that is designed to continuously separate isobutanol during the fermentation process. We developed our technology platform to be compatible with the existing approximately 23 BGPY of global operating ethanol production capacity, as estimated by the Renewable Fuels Association.

GIFT® is designed to permit (i) the retrofit of existing ethanol capacity to produce isobutanol, ethanol or both products simultaneously, or (ii) the addition of renewable isobutanol or ethanol production capabilities to a facility's existing ethanol production by adding additional fermentation capacity side-by-side with the facility's existing ethanol fermentation capacity (collectively referred to as *Retrofit*). Having the flexibility to switch between the production of isobutanol and ethanol, or produce both products simultaneously, should allow us to optimize asset utilization and cash flows at a facility by taking advantage of fluctuations in market conditions. GIFT® is also designed to allow relatively low capital expenditure Retrofits of existing ethanol facilities, enabling a rapid route to isobutanol production from the fermentation of renewable feedstocks. We believe that our production route will be cost-efficient and will enable rapid deployment of our technology platform and allow our isobutanol and related renewable products to be economically competitive with many of the petroleum-based products used in the chemicals and fuels markets today.

We expect that the combination of our efficient proprietary technology, our marketing focus on providing drop-in substitutes for incumbent petrochemical products and our relatively low capital investment Retrofits will mitigate many of the historical issues associated with the commercialization of renewable chemicals and fuels.

Direct Use Markets

Without modification, isobutanol has applications in the specialty chemical and gasoline blendstock markets. Since our potential customers in these markets would not be required to develop any additional infrastructure to use our isobutanol, we believe that selling into these markets will result in a relatively low risk profile and produce attractive margins.

Specialty Chemicals

Isobutanol has direct applications as a specialty chemical. High-purity and chemical-grade isobutanol can be used as a solvent and chemical intermediate. We plan to produce high-purity and chemical-grade isobutanol that can be used in the existing butanol markets as a cost-effective, environmentally sensitive alternative to petroleum-based products.

We believe that our production route will be cost-efficient and will allow for significant expansion of the historical isobutanol markets within existing butanol markets through displacing n-butanol, a related compound to isobutanol that is currently sold into butanol markets.

We estimate the total addressable worldwide market for isobutanol as a specialty chemical to be approximately 1.2 BGPY, or approximately \$5.0 billion annually, based on average 2014 ICIS isobutanol pricing.

Gasoline Blendstocks

Isobutanol has direct applications as a gasoline blendstock. Fuel-grade isobutanol may be used as a high energy content, low Reid Vapor Pressure, gasoline blendstock and oxygenate. Based on isobutanol's low water solubility,

in contrast with ethanol, we believe that isobutanol will be compatible with existing refinery infrastructure, allowing for blending at the refinery rather than blending at the terminal.

Further, based on isobutanol's high energy content and low water solubility, as well as testing completed by the National Marine Manufacturers Association, the Outdoor Power Equipment Institute and Briggs & Stratton, we believe that isobutanol has direct applications as a blendstock in high value specialty fuels markets serving marine, off-road vehicles, small engine and sports vehicle markets.

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We estimate the total addressable worldwide market for isobutanol as a gasoline blendstock to be approximately 40 BGPY, or approximately \$100 billion annually.

Butene and Hydrocarbon Markets

Beyond direct use as a specialty chemical and gasoline blendstock, isobutanol can be dehydrated to produce butenes which can then be converted into other products such as para-xylene, jet fuel and many other hydrocarbon fuels and specialty blendstocks, offering substantial potential for additional demand. The conversion of isobutanol into butenes is a fundamentally important process that enables isobutanol to be used as a building block chemical in multiple markets.

Jet Fuel

We have demonstrated the conversion of our isobutanol into a renewable jet fuel blendstock that meets current ASTM International (ASTM) and U.S. military synthetic jet fuel blendstock performance and purity requirements. We have successfully delivered to the U.S. Air Force, the U.S. Army and the U.S. Navy a combined total of approximately 92,000 gallons of jet fuel made from isobutanol. We are working to obtain an ASTM standard specification for the use of such jet fuel blendstock in commercial aviation. We have already presented positive test results from fit-for-purpose testing of our biojet fuel to ASTM's alcohol-to-jet (ATJ) task force. The full ASTM specification for our ATJ fuel is expected to be issued in early 2016 but due to inherent uncertainty in the regulatory process we cannot guarantee that ASTM certification will be received in a timely manner, or at all.

Military and commercial airlines are currently looking to form strategic alliances with biofuels companies to meet their renewable fuel needs. We have entered into a strategic alliance agreement with Alaska Airlines. Pursuant to the terms of this agreement, Alaska Airlines has agreed to purchase an initial quantity of our renewable jet fuel when we secure ASTM D7655 certification. In the event that we do not secure ASTM certification by December 31, 2016, the agreement will automatically terminate unless we and Alaska Airlines agree in writing to an extension. The agreement does not obligate Alaska Airlines to purchase any additional quantity of jet fuel in addition to the amount initially purchased.

We estimate the global market for jet fuel to be approximately 80 BGPY, or approximately \$210 billion annually. *Para-xylene (PX) and Polyethylene Terephthalate (PET)*

Isobutanol can be used to produce PX, polyester and their derivatives, which are used in the beverage, food packaging, textile and fibers markets. PX is a key raw material in PET production.

We estimate the global market for PET to be approximately 50 million metric tons per year, or approximately \$100 billion annually, of which approximately 30% will be used for plastic bottles and containers. We have demonstrated the conversion of our isobutanol into renewable PX at the demonstration plant in Silsbee, Texas. This demonstration plant has been producing renewable PX since September 2013 and, in May 2014, we shipped renewable PX to Toray Industries, Inc. (Toray Industries) under the terms of a supply agreement.

Butenes

Traditionally butenes have been produced as co-products from the process of cracking naphtha in the production of ethylene. Historically low natural gas prices and reported reductions in the use of naphtha as the feedstock for the production of ethylene have resulted in a projected reduction in the volume of available butenes. This structural shift in feedstocks increases the potential market opportunity for our isobutanol in the production of butenes.

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Chemical-grade isobutanol can be sold to isobutylene and n-butene (butenes) chemicals users for conversion into lubricants, methyl methacrylate and rubber applications.

We estimate the total addressable worldwide market for butenes to be approximately 2.1 BGPY, or approximately \$6.0 billion annually.

Other Hydrocarbon Fuels

Diesel fuel, gasoline, isooctane, isooctene and bunker fuel may also be produced from our isobutanol. We have demonstrated the conversion of isobutanol to isooctane and renewable gasoline. We have also converted isobutanol to kerosene with properties that we expect may be fit for diesel blending applications.

Competitive Strengths

Our competitive strengths include:

Renewable platform molecule to serve multiple large drop-in markets. We believe that our isobutanol will readily substitute for petroleum-based isobutanol and a portion of the petroleum-based n-butanol in use in the specialty chemicals market which exists today. We believe isobutanol can be readily blended with gasoline in existing infrastructure to serve the need for biofuels blending demanded by the U.S. Environmental Protection Agency (the EPA) for fuel manufacturers. We also believe that the butenes produced from our isobutanol will have potential applications in substantially all of the global hydrocarbon fuels market and will serve as renewable alternatives in the production of polyester, rubber, plastics, fibers and other polymers, which comprise approximately 40% of the global petrochemicals market.

Proprietary, low-cost technology with global applications. We believe that GIFT® is capable of producing isobutanol cost-effectively from renewable carbohydrate sources, which we expect will enable the economic production of hydrocarbon derivatives of isobutanol. Our biocatalysts have demonstrated a product yield on sugar of approximately 94% of theoretical maximum by weight, which is close to the maximum actual yield attainable from fermentable sugars. Collectively, we believe that these attributes, coupled with our ability to leverage the existing ethanol production infrastructure, will create relatively low capital cost routes to renewable isobutanol production which will enable our isobutanol to be economically competitive with many of the petroleum-derived products used in the chemicals and fuels markets today. Additionally, GIFT® is designed to enable the economic production of isobutanol and other alcohols from multiple renewable feedstocks, which will allow our technology to be deployed worldwide.

Capital-light commercial deployment strategy optimized for existing infrastructure. We believe that GIFT® allows us to leverage the existing approximately 23 BGPY of global operating ethanol production capacity and that our Retrofit strategy supports a relatively low capital cost route to isobutanol production. Using a factored estimate based on the detailed design of our plant located in Luverne, Minnesota (the Agri-Energy Facility), in combination with our learning from the Retrofit of that facility, we estimate base Retrofit costs to convert an existing grain ethanol plant's production capacity to isobutanol production capacity will be approximately \$1.00 per gallon of existing annual ethanol capacity. This projection translates to approximately \$50 million for a 50 million gallon per year (MGPY) ethanol facility and approximately \$100 million for a 100 MGPY ethanol facility. These projected Retrofit capital expenditures are less than estimates for new plant construction for the

production of advanced biofuels, including cellulosic ethanol.

Technology design enables optimized asset utilization. Our GIFT® design will enable us to switch between the production of isobutanol and ethanol, or produce both products simultaneously, which we believe will allow us to optimize asset utilization and cash flows at a facility by taking advantage of fluctuations in market conditions. Following the completion of a Retrofit, we expect the original plant to operate in essentially the same manner as it did prior to the Retrofit, producing primary products (isobutanol and/or

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ethanol) and co-products (isobutanol distiller's grains (iDGs) and/or distiller's grains). In July 2014, we began more consistent co-production of isobutanol and ethanol at the Agri-Energy Facility, with one fermenter utilized for isobutanol production and three fermenters utilized for ethanol production. In line with our strategy to maximize asset utilization and site cash flows, we believe that this configuration of the plant should allow us to continue to optimize our isobutanol technology at a commercial scale, while taking advantage of potentially superior margin opportunities from the production of ethanol. Our long-term goal is to maximize margins at any plant that has undergone a Retrofit.

GIFT® demonstrated at commercially relevant scale. We have demonstrated fermentation operations with the use of our GIFT® separation system at commercial scale in one million liter fermenters using a corn mash feedstock at our Agri-Energy Facility. In addition, we previously completed the Retrofit of a one MGPY ethanol facility in St. Joseph, Missouri with our proprietary engineering package designed in partnership with ICM, Inc. (ICM) and we successfully produced isobutanol at this facility.

Off-take agreements and strategic relationships with chemicals, fuels, animal feed and engineering industry leaders in place. We have entered into off-take agreements and strategic relationships with global industry leaders to accelerate the execution of our commercial deployment strategy both in the U.S. and internationally. To facilitate the adoption of our technology at existing ethanol plants, we have entered into alliances with ICM and with Praj Industries Ltd. (Praj). We expect our relationships with entities such as Mansfield Oil Company, Toray Industries, the U.S. Air Force, the U.S. Army and the U.S. Navy, among others, to contribute to the development of new chemical and fuel market applications of our isobutanol. To enable the future integration of cellulosic feedstocks into our isobutanol production process, we have obtained an exclusive license from Cargill, Incorporated, to integrate its proprietary biocatalysts into our GIFT® system. To accelerate the adoption of isobutanol as a platform molecule and to support the development of hydrocarbon products derived from our isobutanol, we have developed a hydrocarbon demonstration plant in Silsbee, Texas with South Hampton Resources, Inc.

Experienced team with a proven track record. Our management team offers an exceptional combination of scientific, operational and managerial expertise and our CEO, Dr. Patrick Gruber, has spent over 20 years developing and successfully commercializing industrial biotechnology products. As a result of their extensive experience, members of our management team play important roles in the industrial biotechnology industry at national and international levels. Across the Company, our employees have hundreds of combined years of biotechnology, synthetic biology and biobased product experience. Our employees have been inventors on over 300 patents and patent applications over the course of their careers. Our team members have played key roles in the commercialization of several successful, large-scale industrial biotechnology projects, including a sugar substitute sweetener, four organic acid technologies, an animal feed additive, monomers for plastics and biobased plastics and the first biologically derived high-purity monomer for the production of plastic at a world-scale production facility.

Information Regarding Liquidity

From inception to September 30, 2015, we have funded our operations primarily through equity offerings, issuances of debt, borrowings under our secured debt financing arrangements and revenues earned primarily from the sale of ethanol and related products. For the nine months ended September 30, 2015, we incurred a consolidated net loss of \$28.2 million, and had an accumulated deficit of \$331.5 million at September 30, 2015. During the nine months ended September 30, 2015, we recorded approximately \$22.8 million of revenue associated primarily with sales of ethanol and related products. Our cash and cash equivalents at September 30, 2015 totaled approximately \$16.2 million which is primarily being used for the following: (i) operating activities at our Agri-Energy Facility; (ii) operating activities at

our corporate headquarters in Colorado, including research and development work; (iii) capital improvements primarily associated with the Agri-Energy Facility; (iv) costs associated with optimizing isobutanol production technology; and (v) debt service obligations.

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In addition, we are planning approximately \$5.0 million of capital expenditures at the Agri-Energy Facility expected to be deployed over the next two quarters. These capital improvements are primarily designed to decrease the cost of production for isobutanol by bringing in-house parts of the process that have previously been performed by third parties. Key equipment to be installed at the Agri-Energy Facility includes a distillation system to purify isobutanol on-site, an addition to our seed train to allow us to optimize the production of yeast on-site and a stainless steel fermenter to replace one of the existing carbon steel fermenters that has reached the end of its useful life. The installation of this equipment is expected to significantly decrease the cost of production of isobutanol at the Agri-Energy Facility, to a range of \$3.00-\$3.50 per gallon (assuming a corn price of \$3.65 per bushel and netting the value of the iDGs), enabling isobutanol to be produced at a positive contribution margin, based on an expected average selling price for isobutanol of between \$3.50-\$4.50 per gallon. This expected decrease in production costs should enable us to meaningfully increase isobutanol production levels at the Agri-Energy Facility to a range of .75 to 1 MGPY in 2016.

We expect to incur future net losses as we continue to fund the development and commercialization of our product candidates. Our transition to profitability is dependent upon, among other things, the successful development and commercialization of our product candidates and the achievement of a level of revenues adequate to support our existing cost structure. We may never achieve profitability or generate positive cash flows, and unless and until we do, we will continue to need to raise additional cash. We intend to fund future operations through additional private and/or public offerings of debt or equity securities. In addition, we may seek additional capital through arrangements with strategic partners or from other sources, may seek to restructure our debt and we will continue to address the Company's cost structure. Notwithstanding, there can be no assurance that we will be able to raise additional funds, or achieve or sustain profitability or positive cash flows from operations. These conditions raise substantial doubt about our ability to continue as a going concern.

Recent Developments

Butamax Settlement

On August 22, 2015, we entered into a Settlement Agreement and Mutual Release (the *Settlement Agreement*) with Butamax Advanced Biofuels LLC (*Butamax*), E.I. du Pont de Nemours & Company (*DuPont*) and BP Biofuels North America LLC (*BP*) and, together with Butamax and DuPont, the *Butamax Parties*), that resolves the various disputes, lawsuits and other proceedings between us and one or more of the Butamax Parties, as previously disclosed and as specifically identified in the Settlement Agreement (the *Subject Litigation*), and creates a new business relationship pursuant to which we and Butamax have granted rights to each other under certain patents and patent applications in accordance with the terms of a Patent Cross-License Agreement (the *License Agreement*) which was entered into by us and Butamax concurrently with the Settlement Agreement.

Pursuant to the terms of the Settlement Agreement, the parties terminated the Subject Litigation, subject to certain continuing permitted activities, by filing joint motions of dismissal with prejudice. Upon the parties' joint request, the United States District Court for the District of Delaware (the *District Court*) vacated and withdrew its decisions and orders concerning certain of the parties' substantive motions, specifically the District Court's Claim Construction Memorandum Opinion and Order in matter 11-54, dated March 19, 2013, and the District Court's Memorandum Opinion and Order, dated August 3, 2015, in matters 12-1036, 12-1300 and 12-1200. We expect that the settlement of the Subject Litigation will result in more than \$7.5 million in cost savings annually for the Company.

The Butamax Parties have also agreed to release, on behalf of themselves and their affiliates, us and our affiliates from and against all claims that the Butamax Parties have or may have with respect to any matter arising from or related to the Subject Litigation. Likewise, we have agreed to release, on behalf of ourselves and our affiliates, the Butamax Parties and their affiliates from and against all claims that we have or may have with respect to any matter arising from or related to the Subject Litigation. The mutual release does not extend to any rights or obligations arising from

the Settlement Agreement, the Confidential Disclosure Agreement, dated November 1, 2011, by and among us and the Butamax Parties, the License Agreement or any other agreements between or

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among us and the Butamax Parties and our and their respective affiliates. In addition to the mutual release discussed above, we and each of the Butamax Parties have also agreed to certain limitations on the making or participating in a challenge of the other party's patents that are at issue in the Subject Litigation.

Pursuant to the terms of the License Agreement, which includes payment of certain royalties and other fees, each party received a non-exclusive license under certain patents and patent applications owned or licensed (and sublicensable) by the other party for the production and use of biocatalysts in the manufacture of isobutanol using certain production process technology for the separation of isobutanol, and to manufacture and sell such isobutanol in any fields relating to the production or use of isobutanol and isobutanol derivatives, subject to the customer-facing field restrictions described more fully in our Current Report on Form 8-K filed on August 27, 2015 and the License Agreement filed as an exhibit to our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2015. Each party to the License Agreement also received a non-exclusive license to perform research and development on biocatalysts for the production, recovery and use of isobutanol.

The Settlement Agreement and the License Agreement will continue in effect until the expiration of the licensed patents, unless earlier terminated by all parties in writing, except that certain obligations under the Settlement Agreement, including the mutual release, and obligations to pay royalties and other fees under the License Agreement will survive any such termination.

Praj Development Agreement

On November 6, 2015, we entered into a Joint Development Agreement (the "JDA") with Praj which establishes a strategic relationship to: (i) jointly develop our technology for use in certain ethanol plants that utilize sugarcane juice, sugarcane syrup, sugarcane molasses, sugar beet juice, sugar beet syrup, sugar beet molasses, cassava, rice, and cellulosic sugars (the "Feedstock"); (ii) jointly develop an engineering package for greenfield Biobutanol plants and retrofitting ethanol plants to produce renewable isobutanol ("Biobutanol") from the Feedstock; and (iii) license our technology to build greenfield Biobutanol plants and retrofit certain ethanol plants to produce Biobutanol.

The parties will jointly develop and optimize the parameters to produce Biobutanol from the Feedstock (the "Development Work"). After the Development Work is completed, we will negotiate commercial license agreements with Praj and third party licensees. Praj has the exclusive right to supply equipment and process engineering services for (i) certain greenfield Biobutanol plants covered by the JDA and (ii) the addition of Biobutanol capacity for certain ethanol plants that utilize the Feedstock and Praj technology. Praj agreed to meet certain milestones to maintain its exclusive rights. We will negotiate and license our technology for producing Biobutanol directly with the ethanol plants covered by the JDA and will also have the right to supply biocatalysts, nutrient packages, and support services to such plants. Praj will be the engineering procurement and construction supplier for the ethanol plants covered by the JDA and we will be the exclusive seller of all Biobutanol produced by such plants. The JDA will continue in effect for two years unless it is earlier terminated by either of the parties as provided in the JDA. The parties have agreed to indemnify one another under certain circumstances and to limit their liability under the JDA.

In connection with the JDA, on November 6, 2015, we entered into a Development License Agreement with Praj (the "Praj License Agreement"). We own certain patents, patent applications, and know-how relating to the production, recovery and use of Biobutanol. Pursuant to the License Agreement with Butamax, we received certain sublicensing rights, on a non-exclusive basis, in and to certain patents and patent applications relating to the production, recovery and use of Biobutanol that are owned or licensed (and sublicensable) by Butamax (collectively, the "Licensed Butamax Patents"). Pursuant to the Praj License Agreement, we granted Praj a license to our patents, patent applications, and know-how on a non-exclusive, royalty-free basis for use solely at Praj's Matrix plant in Pune, India, and a non-exclusive sublicense of our rights in and to the Licensed Butamax Patents for use within that facility, in each instance, for purposes of process development and manufacturing Biobutanol from the Feedstock at that facility, under the terms and conditions of the Praj License Agreement.

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Praj must adhere to certain restrictions in connection with its use of the license, including without limitation, Praj (i) must use only our biocatalysts and separation technology and (ii) may only use the license and sublicense to produce Biobutanol. In addition, Praj cannot use a third party to produce Biobutanol on its behalf and cannot sublicense its rights under the Praj License Agreement without our prior written consent, which we can withhold in our sole and absolute discretion. Praj must keep records and provide us with information stating the number of gallons of Biobutanol produced and destroyed in each quarter. If Praj creates, develops, makes, or acquires any improvements to the patents or know-how it has licensed from us, it must promptly disclose such improvements to us and agrees to irrevocably and unconditionally assign, transfer, and convey any right, title or interest it may have to us. Should Praj be unable to assign its rights to such improvements, it will not enforce such rights against us and will grant us an exclusive, unconditional, irrevocable, fully-paid and royalty-free license to use such improvements without restriction.

The parties have also made certain representations, warranties and covenants to each other, including without limitation, with respect to confidentiality and each parties authority to enter into the Praj License Agreement. Praj has also agreed to indemnify and hold us harmless from claims and losses arising directly or indirectly from the Praj License Agreement or any other activities regarding the use of our technology or biocatalyst. The Praj License Agreement also provides for the parties limited liability. The Praj License Agreement will continue in effect for two years unless earlier terminated by either of the parties, as provided in the Praj License Agreement, and may be renewed for additional one year terms with the mutual agreement of both parties.

For additional information, see the JDA and the Praj License Agreement, each of which was filed as an exhibit to our Current Report on Form 8-K filed with the SEC on November 10, 2015.

Reverse Stock Split

On April 15, 2015, our Board of Directors approved a reverse split of our common stock, par value \$0.01, at a ratio of one-for-fifteen. This reverse stock split became effective on April 20, 2015 and, unless otherwise indicated, all share amounts, per share data, share prices, exercise prices and conversion rates set forth in this prospectus supplement have, where applicable, been adjusted retroactively to reflect this reverse stock split.

Our Corporate Information

We were incorporated in Delaware in June 2005 under the name Methanotech, Inc. and filed an amendment to our certificate of incorporation changing our name to Gevo, Inc. on March 29, 2006. Our principal executive offices are located at 345 Inverness Drive South, Building C, Suite 310, Englewood, Colorado 80112, and our telephone number is (303) 858-8358. We maintain an internet website at www.gevo.com. Information contained in or accessible through our website does not constitute part of this prospectus supplement or the accompanying prospectus.

The Offering

Common stock offered by us	shares of common stock.
Warrants offered by us	Series D warrants to purchase up to shares of common stock. Each full Series D warrant will entitle the holder to purchase one share of common stock. The Series D warrants will be exercisable during the period commencing on June , 2016 and ending on December , 2020, the expiration date of the Series D warrants, at an exercise price of \$ per share of common stock.
	Pre-funded Series E warrants to purchase up to shares of common stock. Each full pre-funded Series E warrant will entitle the holder to purchase one share of common stock. The pre-funded Series E warrants will be exercisable during the period commencing on the date of original issuance and ending on December , 2016, the expiration date of the pre-funded Series E warrants, at an exercise price of \$ per share of common stock. The exercise price of \$ per share will be pre-paid, except for a nominal exercise price of \$0.01 per share, upon issuance of the pre-funded Series E warrants and, consequently, no additional payment or other consideration (other than the nominal exercise price of \$0.01 per share) will be required to be delivered to the Company by the holder upon exercise.
	This prospectus also relates to the offering of the shares of common stock issuable upon exercise of the warrants. The exercise price of the warrants and the number of shares into which the warrants may be exercised are subject to adjustment in certain circumstances.
Common stock outstanding after this offering	shares of common stock. ⁽¹⁾
Limitation on ownership of warrants	A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would beneficially own more than 4.99% of our outstanding common stock after exercise. The holder may increase or decrease this beneficial ownership limitation to any other percentage not in excess of 9.99%, upon, in the case of an increase, not less than 61 days prior written notice to us.
Use of proceeds	We expect the net proceeds from this offering to be approximately \$, after deducting underwriting discounts and commissions, as described in Underwriting, and estimated offering expenses payable by us. We currently intend to use the net proceeds from this offering to fund working capital, including capital expenditures at the Agri-Energy Facility, and for other general corporate purposes.

As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, we will retain broad discretion over the use of such proceeds. Pending the use of the net proceeds from this offering as described above, we intend to invest the net proceeds in demand deposit accounts. See Use of Proceeds on page S-53 of this prospectus supplement.

NASDAQ Capital Market symbol

GEVO . The warrants are not and will not be listed for trading on the NASDAQ Capital Market, or any other securities exchange.

Transfer Agent

American Stock Transfer & Trust Company

Risk factors

This investment involves a high degree of risk. See **Risk Factors** beginning on page S-14 of this prospectus supplement for a discussion of factors you should carefully consider before deciding to invest in our securities.

(1) The number of shares of our common stock to be outstanding immediately after the closing of this offering is based on 18,072,207 shares of common stock outstanding as of November 30, 2015 and excludes the following:

8,644,723 shares reserved for issuance pursuant to outstanding options, warrants or rights to acquire from the Company, or instruments convertible into or exchangeable for, or agreements or understandings with respect to the sale or issuance by the Company of, common stock;

69,860 shares of common stock available for future grant under our 2010 Stock Incentive Plan (as amended, the 2010 Plan);

76,629 shares of common stock available for issuance pursuant to our Employee Stock Purchase Plan; and

shares of common stock issuable upon the exercise of the warrants offered hereby.

Summary Financial Information

In the tables below, we provide you with a summary of our historical consolidated financial information. The information is only a summary, and you should read it together with the financial information incorporated by reference in this document. See Incorporation of Certain Documents by Reference on page S-70 of this prospectus supplement and Where You Can Find Additional Information on page S-70 of this prospectus supplement. The consolidated statements of operations data for the years ended December 31, 2012, 2013 and 2014 is derived from our audited financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and incorporated by reference herein. The consolidated statements of operations data for the nine months ended September 30, 2014 and 2015 and the consolidated balance sheet data as of September 30, 2015 is derived from our unaudited quarterly financial statements included in our Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2015 and incorporated by reference herein. These unaudited financial statements have been prepared on a basis consistent with our audited financial statements and include, in the opinion of management, all adjustments, consisting only of normal recurring adjustments, necessary for the fair statement of the financial information in those statements.

Our consolidated subsidiary Agri-Energy, LLC, a Minnesota limited liability company (Agri-Energy), commenced the Retrofit of the Agri-Energy Facility in 2011 and commenced initial startup operations for the production of isobutanol at this facility in May 2012. In September 2012, we made the strategic decision to pause isobutanol production at the Agri-Energy Facility to focus on optimizing specific parts of the process to further enhance isobutanol production rates. In 2013, we modified our Agri-Energy Facility in order to increase the isobutanol production rate. In June 2013, we resumed the limited production of isobutanol operating one fermenter and one GIFT[®] separation system in order to (i) verify that the modifications had significantly reduced the previously identified infections, (ii) demonstrate that our biocatalyst performs in the one million liter fermenters at the Agri-Energy Facility, and (iii) confirm GIFT[®] efficacy at commercial scale at the Agri-Energy Facility. In August 2013, we expanded production capacity at the Agri-Energy Facility by adding a second fermenter and second GIFT[®] system to further verify our results with a second configuration of equipment. In October 2013, we began commissioning the Agri-Energy Facility on corn mash to test isobutanol production run rates and to optimize biocatalyst production, fermentation separation and water management systems. In March 2014, we decided to leverage the flexibility of our GIFT[®] technology and further modify the Agri-Energy Facility to enable the simultaneous production of isobutanol and ethanol. In July 2014, we began more consistent co-production of isobutanol and ethanol at the Agri-Energy Facility, with one fermenter utilized for isobutanol production and three fermenters utilized for ethanol production. In line with our strategy to maximize asset utilization and site cash flows, we believe that this configuration of the plant should allow us to continue to optimize our isobutanol technology at a commercial scale, while taking advantage of potentially superior contribution margins from the production of ethanol. Also with a view to maximizing site cash flows, over certain periods of time, we may and have operated the plant for the sole production of ethanol across all four fermenters. Our long-term goal is to maximize margins at the Agri-Energy Facility.

Following our acquisition of Agri-Energy on September 22, 2010, we have primarily derived revenue from the sale of ethanol, distiller's grains and other related products produced as part of the ethanol production process at the Agri-Energy Facility. The production of ethanol alone is not our intended business and our future strategy is expected to depend on our ability to produce and market isobutanol and products derived from isobutanol. Given that the production of ethanol alone is not our intended business, and we are only beginning to achieve more consistent production and revenue from the sale of isobutanol, the historical operating results of Agri-Energy may not be indicative of future operating results for Agri-Energy or Gevo.

For purposes of the disclosure contained in this section, the Company, we, us and our refer to Gevo, Inc., Gevo Development, LLC and Agri-Energy, as the context requires.

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Consolidated statements of operations data:	Years Ended December 31,			Nine Months Ended September 30,	
	2012	2013	2014	2014 (Unaudited)	2015
Revenue and cost of goods sold:					
Ethanol sales and related products, net	\$ 19,908,000	\$	\$ 23,549,000	\$ 14,719,000	\$ 20,604,000
Hydrocarbon revenue	650,000	2,157,000	3,949,000	3,426,000	1,449,000
Grant and other revenue	2,818,000	2,722,000	768,000	620,000	787,000
Corn sales	1,009,000	3,345,000			
Total revenues	24,385,000	8,224,000	28,266,000	18,765,000	22,840,000
Cost of corn sales	918,000	3,391,000			
Cost of goods sold	31,492,000	14,522,000	35,582,000	24,709,000	29,761,000
Gross (loss) margin	(8,025,000)	(9,689,000)	(7,316,000)	(5,944,000)	(6,921,000)
Operating expenses:					
Research and development	19,431,000	20,179,000	14,120,000	11,414,000	5,014,000
Selling, general and administrative	43,981,000	25,548,000	18,341,000	13,508,000	13,406,000
Other operating expenses		99,000			
Total operating expenses	63,412,000	45,826,000	32,461,000	24,922,000	18,420,000
Loss from operations	(71,437,000)	(55,515,000)	(39,777,000)	(30,866,000)	(25,341,000)
Other (expense) income:					
Interest expense	\$ (6,338,000)	\$ (9,301,000)	\$ (8,255,000)	\$ (6,227,000)	\$ (6,186,000)
Interest expense debt issuance cost			(3,769,000)	(3,766,000)	
Gain (loss) on conversion of debt		(2,038,000)			285,000
Gain (loss) on extinguishment of warrant liability					1,775,000
Gain (loss) from change in fair value of embedded derivative of the 2022 Notes	17,000,000	3,114,000	3,470,000	3,470,000	
Gain (loss) from change in fair value of derivative warrant liability		(3,195,000)	6,530,000	6,772,000	(2,361,000)
Gain (loss) from change in fair value of 2017 Notes			648,000	544,000	3,582,000
Other income	63,000	129,000	8,000	7,000	14,000
Total other (expense) income	10,725,000	(11,291,000)	(1,368,000)	800,000	(2,891,000)
Net loss	(60,712,000)	(66,806,000)	(41,145,000)	(30,066,000)	(28,232,000)
Net loss attributable to Gevo, Inc. common stockholders	\$ (60,712,000)	\$ (66,806,000)	\$ (41,145,000)	\$ (30,066,000)	\$ (28,232,000)
Net loss per share of common stock attributable to Gevo, Inc. stockholders, basic and diluted	\$ (27.92)	\$ (22.23)	\$ (7.67)	\$ (6.07)	\$ (2.22)

Weighted-average number of common shares used in computing net loss per share of common stock, basic and diluted	2,174,606	3,004,775	5,366,162	4,956,994	12,700,844
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Consolidated balance sheet data:	As of September 30, 2015	
	Actual	As Adjusted⁽¹⁾
		(Unaudited)
Cash and cash equivalents	\$ 16,203,000	\$
Total assets	100,953,000	
Secured debt, net of debt discounts	561,000	
Convertible Notes, net	37,121,000	
Other long-term liabilities	147,000	
Total liabilities	48,035,000	
Accumulated deficit	(331,530,000)	
Total stockholders' equity	52,918,000	

(1) The as adjusted consolidated balance sheet data gives effect to this offering and the receipt of the net proceeds therefrom, after deducting underwriter discounts and commissions and estimated offering expenses.

RISK FACTORS

An investment in our securities involves a substantial risk of loss. You should carefully consider these risk factors, together with all of the other information included or incorporated by reference in this prospectus supplement and the accompanying prospectus, as modified and superseded pursuant to Rule 412 under the Securities Act of 1933, as amended (the Securities Act), before you decide to invest in our securities. The occurrence of any of the following risks could harm our business. In that case, the trading price of our common stock and warrants could decline, and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently believe are immaterial may also impair our business operations and our liquidity. You should also refer to the other information contained in this prospectus supplement and the accompanying prospectus or incorporated by reference herein or therein, including our financial statements and the notes to those statements and the information set forth under the heading Cautionary Note Regarding Forward-Looking Statements.

Certain Risks Related to Owning Our Securities.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively, which could cause the value of your investment to decline.

Our management will have broad discretion in the application of the net proceeds of this offering. You will not have the opportunity to influence our decisions on how to use our net proceeds from this offering. Our failure to apply the net proceeds effectively could affect our ability to continue to develop and sell our products and grow our business, which could cause the value of your investment to decline.

We have substantial indebtedness outstanding and may incur additional indebtedness in the future. Our indebtedness exposes us to risks that could adversely affect our business, financial condition and results of operations.

As of September 30, 2015, the aggregate amount of the outstanding principal and final payments under our amended and restated loan and security agreement with TriplePoint Capital LLC (TriplePoint) was approximately \$0.6 million and we had \$26.1 million in outstanding 10% Convertible Senior Notes, due 2017, which were issued to WB Gevo, Ltd. (Whitebox) in June 2014 (the 2017 Notes), and \$24.9 million in outstanding 7.5% Convertible Senior Notes due 2022, which were issued in July 2012 (the 2022 Notes and, together with the 2017 Notes, the Convertible Notes). In addition, we and any current and future subsidiaries of ours may incur substantial additional debt in the future, subject to the specified limitations in our existing financing documents and the indentures governing the Convertible Notes. If new debt is added to our or any of our subsidiaries' debt levels, the risks described in this Certain Risks Related to Owning Our Securities section could intensify.

Our current and future indebtedness could have significant negative consequences for our business, results of operations and financial condition, including:

increasing our vulnerability to adverse economic and industry conditions;

limiting our ability to obtain additional financing;

requiring the dedication of a substantial portion of our cash flow from operations to service our indebtedness, thereby reducing the amount of our cash flow available for other purposes;

limiting our flexibility in planning for, or reacting to, changes in our business; and

placing us at a possible competitive disadvantage with less leveraged competitors and competitors that may have better access to capital resources.

We cannot assure you that we will continue to maintain sufficient cash reserves or that our business will generate cash flow from operations at levels sufficient to permit us to pay principal, premium, if any, and interest on our

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indebtedness, or that our cash needs will not increase. If we are unable to generate sufficient cash flow or otherwise obtain funds necessary to make required payments, or if we fail to comply with the various requirements of our existing indebtedness or any other indebtedness which we may incur in the future, we would be in default, which could permit the holders of our indebtedness, including the Convertible Notes, to accelerate the maturity of such indebtedness. Any default under such indebtedness could have a material adverse effect on our business, results of operations and financial condition.

In particular, our indebtedness with Whitebox and TriplePoint is secured by liens on substantially all of our assets, including our intellectual property. If we are unable to satisfy our obligations under such instruments, Whitebox or TriplePoint, as applicable, could foreclose on our assets, including our intellectual property. Any such foreclosure could force us to substantially curtail or cease our operations which could have a material adverse effect on our business, financial condition and results of operations.

Our stock price may be volatile, and your investment in our securities could suffer a decline in value.

The market price of shares of our common stock has experienced significant price and volume fluctuations. For example, since February 19, 2011, when we became a public company, the closing sales price for one share of our common stock has reached a high of \$383.25 and a low of \$1.29.

We cannot predict whether the price of our common stock will rise or fall. A variety of factors may have a significant effect on our stock price, including:

actual or anticipated fluctuations in our financial condition and operating results;

the position of our cash and cash equivalents;

actual or anticipated changes in our growth rate relative to our competitors;

actual or anticipated fluctuations in our competitors' operating results or changes in their growth rate;

announcements of technological innovations by us, our partners or our competitors;

announcements by us, our partners or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;

the entry into, modification or termination of licensing arrangements, marketing arrangements, and/or research, development, commercialization, supply, off-take or distribution arrangements;

our ability to consistently produce commercial quantities of isobutanol at the Agri-Energy Facility and ramp up production to nameplate capacity;

additions or losses of customers;

our ability to obtain certain regulatory approvals for the use of our isobutanol in various fuels and chemicals markets;

commodity prices, including oil, ethanol and corn prices;

additions or departures of key management or scientific personnel;

competition from existing products or new products that may emerge;

issuance of new or updated research reports by securities or industry analysts;

fluctuations in the valuation of companies perceived by investors to be comparable to us;

litigation involving us, our general industry or both;

disputes or other developments related to proprietary rights, including patents, litigation matters and our ability to obtain patent protection for our technologies;

announcements or expectations of additional financing efforts or the pursuit of strategic alternatives;

changes in existing laws, regulations and policies applicable to our business and products, including the Renewable Fuel Standard (RFS) program, and the adoption of or failure to adopt carbon emissions regulation;

sales of our common stock or equity-linked securities, such as warrants, by us or our stockholders;

share price and volume fluctuations attributable to inconsistent trading volume levels of our shares;

general market conditions in our industry; and

general economic and market conditions, including the recent financial crisis.

Furthermore, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many companies. These fluctuations often have been unrelated or disproportionate to the operating performance of those companies. These broad market and industry fluctuations, as well as general economic, political and market conditions such as recessions, interest rate changes or international currency fluctuations, may negatively impact the market price of shares of our common stock, regardless of our operating performance, and cause the value of your investment to decline. Because the warrants are exercisable into our common stock, volatility or a reduction in the market price of our common stock could have an adverse effect on the trading price of the warrants. Holders who receive common stock upon exercise of the warrants will also be subject to the risk of volatility and a reduction in the market price of our common stock. In addition, the existence of the Convertible Notes and our outstanding warrants, together with the warrants being offered hereby, may encourage short selling in our common stock by market participants because the conversion of the Convertible Notes or exercise of the warrants could depress the price of our common stock.

Additionally, in the past, companies that have experienced volatility in the market price of their stock have been subject to securities class action litigation or other derivative shareholder lawsuits. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business regardless of the outcome.

The price of our common stock could also be affected by possible sales of common stock by investors who view the Convertible Notes or warrants as a more attractive means of equity participation in us and by hedging or arbitrage activity involving our common stock. The hedging or arbitrage could, in turn, affect the trading prices of the warrants, or any common stock that holders receive upon exercise of the warrants.

Sales of a substantial number of shares of our common stock or securities linked to our common stock, such as the Convertible Notes and warrants, in the public market could occur at any time. These sales, or the perception in the market that such sales may occur, could reduce the market price of our common stock.

In addition, certain holders of our outstanding common stock (including shares of our common stock issuable upon the conversion of certain Convertible Notes or upon exercise of certain outstanding warrants) have rights, subject to certain conditions, to require us to file registration statements covering their shares and to include their shares in registration statements that we may file for ourselves or other stockholders.

Future issuances of our common stock or instruments convertible or exercisable into our common stock, including in connection with conversions of Convertible Notes or exercises of warrants, may materially and adversely affect the price of our common stock and cause dilution to our existing stockholders.

We may obtain additional funds through public or private debt or equity financings in the near future, subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint. If we issue additional shares of common stock or instruments convertible into common stock, it may materially and adversely affect the price of our common stock. In addition, the conversion

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of some or all of the Convertible Notes and/or the exercise of some or all of the warrants may dilute the ownership interests of our stockholders, and any sales in the public market of any of our common stock issuable upon such conversion or exercise could adversely affect prevailing market prices of our common stock. Additionally, under the terms of certain warrants (including the warrants being offered hereby), in the event that a warrant is exercised at a time when we do not have an effective registration statement covering the underlying shares of common stock on file with the SEC, such warrant may be net exercised, which will dilute the ownership interests of existing stockholders without any corresponding benefit to the Company of a cash payment for the exercise price of such warrant.

As of September 30, 2015, we had \$24.9 million in outstanding 2022 Notes, which were convertible into 1,759,432 shares of common stock at the conversion rate in effect on September 30, 2015 (which amount includes 1,467,821 shares of common stock issuable in full satisfaction of the coupon make-whole payments due in connection therewith). The anticipated conversion of the \$24.9 million in outstanding 2022 Notes into shares of our common stock could depress the trading price of our common stock. In addition, we have the option to issue common stock to any converting holder in lieu of making any required coupon make-whole payment in cash. If we elect to issue our common stock for such payment, the stock will be valued at 90% of the simple average of the daily volume weighted average prices of our common stock for the 10 trading days ending on and including the trading day immediately preceding the conversion date. If our stock price decreases, the number of shares we would be required to deliver in connection with the coupon make-whole payments would increase. Given that the agreements governing our indebtedness, including our secured indebtedness with TriplePoint, may prohibit us from paying, repurchasing or redeeming the 2022 Notes or making cash payments in respect of the coupon make-whole payments due upon a conversion, we may be unable to make such payment in cash. If we issue additional shares of our common stock in satisfaction of such payments, this may cause significant additional dilution to our existing stockholders.

As of September 30, 2015, we had \$26.1 million in outstanding 2017 Notes, which were convertible into 1,727,968 shares of our common stock at the conversion rate in effect on September 30, 2015. The 1,727,968 shares includes 225,436 shares of common stock that may be issuable from time to time in the event that the Company pays a portion of the interest on the 2017 Notes in kind or elects to pay make-whole payments due upon conversion of the 2017 Notes, if any, in shares of common stock. The anticipated conversion of the outstanding 2017 Notes (including any interest that is paid in kind) into shares of our common stock could depress the trading price of our common stock. In addition, subject to certain restrictions, we have the option to issue common stock to any converting holder in lieu of making any required make-whole payment in cash. If we elect to issue our common stock for such payment, it will be at the same conversion rate that is applicable to conversions of the principal amount of the 2017 Notes. If we elect to issue additional shares of our common stock for such payments, this may cause significant additional dilution to our existing stockholders.

The terms of the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint and the indentures governing the Convertible Notes, may restrict our ability to engage in certain transactions.

The terms of the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint and the indentures governing the Convertible Notes, may prohibit us from engaging in certain actions, including disposing of certain assets, granting or otherwise allowing the imposition of a lien against certain assets, incurring certain kinds of additional indebtedness, acquiring or merging with other entities, or making dividends and other restricted payments unless we receive the prior approval of the requisite lenders or the requisite holders of the Convertible Notes. If we are unable to obtain such approval, we could be prohibited from engaging in transactions which could be beneficial to our business and our stockholders or could be forced to repay such indebtedness in full.

The indentures governing the Convertible Notes may prohibit us from engaging in certain mergers or acquisitions and if a fundamental change of the Company occurs prior to the maturity date of the Convertible Notes, holders of the Convertible Notes will have the right, at their option, to require us to repurchase all or a portion of their Convertible

Notes and, in certain circumstances, to pay the holders of Convertible Notes a

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make-whole payment equal to the aggregate amount of interest that would have been payable on such Convertible Notes from the repurchase date through the maturity date of such Convertible Notes. With respect to the 2022 Notes, if a fundamental change occurs prior to the maturity date of the 2022 Notes, we will in some cases be required to increase the conversion rate for a holder that elects to convert its 2022 Notes in connection with such fundamental change. With respect to the 2017 Notes, the Company has the right to increase the conversion rate of the 2017 Notes by any amount for a period of at least 20 business days if the Company's board of directors determines that such increase would be in the Company's best interest. In addition, if a fundamental transaction occurs, holders of warrants will have the right, at their option, to require us to repurchase the unexercised portion of such warrants for an amount in cash equal to the value of the warrants, as determined in accordance with the Black Scholes option pricing model and the terms of the warrants. These and other provisions could prevent or deter a third party from acquiring us, even where the acquisition could be beneficial to you.

The conversion or exercise prices, as applicable, of the Convertible Notes and warrants can fluctuate under certain circumstances which, if triggered, can result in potentially material further dilution to our stockholders.

The conversion price of the 2022 Notes can fluctuate in certain circumstances, including in the event that we undertake certain stock dividends, splits, combinations or distributions, or if there is a fundamental change prior to the maturity date of the 2022 Notes. In such instances, the conversion price of the 2022 Notes can fluctuate materially lower than the current conversion price of \$85.39 per share. The conversion price of the 2017 Notes can fluctuate in certain circumstances, including in the event that there is a dividend or distribution paid on shares of our common stock or a subdivision, combination or reclassification of our common stock. In such instances, the conversion price of the 2017 Notes can fluctuate materially lower than the current conversion price of \$17.38 per share.

The number of shares of common stock for which certain of our warrants, including certain of the warrants being offered hereby, are exercisable may be adjusted in the event that we undertake certain stock dividends, splits, combinations, distributions, and the price at which such shares of common stock may be purchased upon exercise of the warrants may be adjusted in the event that we undertake certain issuances of common stock or convertible securities at prices lower than the then-current exercise price for the warrants. As a result of these provisions, the exercise price of the warrants that we issued in December 2013, August 2014, February 2015 and May 2015 will be subject to adjustment in connection with this offering. These provisions could result in substantial dilution to investors in our common stock.

The interest rates of the Convertible Notes can fluctuate under certain circumstances which, if triggered, can result in potentially material further dilution to our stockholders.

The interest rates of the Convertible Notes can fluctuate in certain circumstances, including in the event of a default of our obligations under the indentures governing the Convertible Notes or the registration rights agreements, if any, entered into in connection with such notes. In addition, the interest on the 2017 Notes will be payable 50% in cash and 50% in kind if (i) no event of default has occurred and is continuing under the indentures governing the 2017 Notes and (ii) the last reported sales price of our common stock on the 10th trading day immediately preceding the relevant interest payment date is more than \$16.50 per share. As the Company may be required to pay a portion of the interest on the 2017 Notes in kind, by either increasing the principal amount of the outstanding 2017 Notes or issuing additional 2017 Notes, any increase to the interest rate applicable to the 2017 Notes could result in additional dilution to investors in our common stock.

We may not have the ability to pay interest on the Convertible Notes or to repurchase or redeem the Convertible Notes.

If a fundamental change (as defined in the indentures governing the Convertible Notes) occurs, holders of the Convertible Notes may require us to repurchase, for cash, all or a portion of their Convertible Notes. In such

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circumstance we would be required to offer to repurchase the Convertible Notes at 100% of principal plus accrued and unpaid interest to, but not including, the repurchase date. We would also be required to pay the holders of the 2017 Notes a fundamental change make-whole payment equal to the aggregate amount of interest that would have otherwise been payable on such notes to, but not including, the maturity date of such notes. If we elect to redeem the Convertible Notes prior to their maturity, the redemption price of any Convertible Notes redeemed by us will be paid for in cash. Our ability to pay the interest on the Convertible Notes, to repurchase or redeem the Convertible Notes, to refinance our indebtedness and to fund working capital needs and planned capital expenditures depends on our ability to generate cash flow in the future. To some extent, this is subject to general economic, financial, competitive, legislative and regulatory factors and other factors that are beyond our control. We cannot assure you that we will maintain sufficient cash reserves or that our business will generate cash flow from operations at levels sufficient to permit us to pay the interest on the Convertible Notes, to repurchase or redeem the Convertible Notes or to pay any cash amounts that may become due upon conversion of the Convertible Notes, or that our cash needs will not increase. In addition, any such repurchase or redemption of the Convertible Notes, even if such action would be in our best interests, may result in a default under the agreements governing our indebtedness, including our secured indebtedness with TriplePoint, unless we are able to obtain the applicable lender's consent prior to the taking of such action.

Our failure to repurchase tendered Convertible Notes at a time when the repurchase is required by the indenture governing such notes would constitute a default under such notes and would permit holders of such notes to accelerate our obligations under such notes. Such default may also lead to a default under the agreements governing any of our current and future indebtedness. If the repayment of the related indebtedness were to be accelerated after any applicable notice or grace periods, we may not have sufficient funds to repay such indebtedness and repurchase the Convertible Notes or make cash payments upon conversions thereof.

If we are unable to generate sufficient cash flow from operations in the future to service our indebtedness and meet our other needs, we may have to refinance all or a portion of our indebtedness, obtain additional funds through public or private debt or equity financings, reduce expenditures or sell assets that we deem necessary to our business. Our ability to take some or all of these actions will be subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint, and we cannot assure you that any of these measures would be possible or that any additional financing could be obtained on favorable terms, or at all. The inability to obtain additional financing on commercially reasonable terms could have a material adverse effect on our financial condition, which could cause the value of your investment to decline. Additionally, if we were to conduct a public or private offering of securities, any new offering would be likely to dilute our stockholders' equity ownership.

The issuance of share-based payment awards under our stock incentive plan may cause dilution to our existing stockholders and may affect the market price of our common stock.

We have used, and in the future we may continue to use, stock options, stock grants and other equity-based incentives, either pursuant to the 2010 Plan, or outside of the 2010 Plan, to provide motivation and compensation to our directors, officers, employees and key independent consultants. The award of any such incentives will result in an immediate and potentially substantial dilution to our existing shareholders and could result in a decline in the value of our stock price.

As of September 30, 2015, there were 565,955 shares subject to outstanding options that are or will become eligible for sale in the public market to the extent permitted by any applicable vesting requirements and Rules 144 and 701 under the Securities Act. The exercise of these options and the sale of the underlying shares of common stock and the sale of stock issued pursuant to stock grants may have an adverse effect upon the price of our common stock, which in turn may have an adverse effect upon the trading price of the warrants.

As of September 30, 2015, there were 69,860 shares of common stock available for future grant under our 2010 Plan and 76,629 shares of common stock reserved for issuance under our Employee Stock Purchase Plan. These shares can be freely sold in the public market upon issuance and once vested.

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We may pay vendors in stock as consideration for their services; this may result in additional costs and may cause dilution to our existing stockholders.

In order for us to preserve our cash resources, we may in the future pay vendors, including technology partners, in shares, warrants or options to purchase shares of our common stock rather than cash. Payments for services in stock may materially and adversely affect our stockholders by diluting the value of outstanding shares of our common stock. In addition, in situations where we agree to register the shares issued to a vendor, this will generally cause us to incur additional expenses associated with such registration.

Significant holders or beneficial holders of our common stock may not be permitted to exercise warrants that they hold.

The warrants being offered hereby will prohibit a holder from exercising its warrants if doing so would result in such holder beneficially owning more than 4.99% of our common stock. Any holder may increase or decrease this beneficial ownership limitation to any other percentage not in excess of 9.99%, upon, in the case of an increase, not less than 61 days prior written notice to us. As a result, you may not be able to exercise your warrants for shares of our common stock at a time when it would be financially beneficial for you to do so. In such circumstance, you could seek to sell your warrants to realize value but you may be unable to do so.

There is no public market for the warrants to purchase common stock being offered in this offering.

There is no established public trading market for the warrants being offered in this offering, and we do not expect a market to develop. In addition, we do not intend to apply for listing of the warrants on any securities exchange. Without an active market, the liquidity of the warrants will be limited.

Except as set forth in the applicable warrant, holders of our warrants will have no rights as common stockholders until such holders exercise their warrants and acquire our common stock.

Until you acquire shares of our common stock upon exercise of your warrants, you will have no rights with respect to the shares of our common stock underlying such warrants, except for those rights set forth in the applicable warrant. Upon exercise of your warrants, you will be entitled to exercise the rights of a common stockholder only as to matters for which the record date occurs after the exercise date.

The exercise prices for the warrants will not be adjusted for all dilutive events.

The exercise prices for the warrants are subject to adjustment for certain events, including the issuance of stock dividends on our common stock and, in certain instances, the exercise price of the Series D warrants is subject to adjustment in the event of an issuance of our common stock at a price per share less than the exercise price of the Series D warrants. However, the exercise prices will not be adjusted for other events, including the issuance of certain rights, options or warrants, distributions of capital stock, indebtedness, or assets and cash dividends. Accordingly, an event that adversely affects the value of the warrants may occur, and that event may not result in an adjustment to the exercise prices.

We may not be permitted by the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint, to repurchase the warrants, and we may not have the ability to do so.

Under certain circumstances, if a fundamental transaction (as defined in the warrants) occurs, holders of the warrants may require us to repurchase, for cash, the remaining unexercised portion of such warrants for an amount of cash equal to the value of the warrant as determined in accordance with the Black Scholes option pricing model and the terms of the warrants. Our ability to repurchase the warrants depends on our ability to generate cash flow in the future.

To some extent, this is subject to general economic, financial, competitive, legislative and regulatory factors and other factors that are beyond our control. We cannot assure you that we will maintain sufficient cash reserves or that our business will generate cash flow from operations at levels sufficient

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to permit us to repurchase the warrants. In addition, any such repurchase of the warrants may result in a default under the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint, unless we are able to obtain such lender's consent prior to the taking of such action. If we were unable to obtain such consent, compliance with the terms of the warrants would trigger an event of default under such agreements.

We do not anticipate paying cash dividends, and accordingly, stockholders must rely on stock appreciation for any return on their investment.

Under the terms of the agreements governing our indebtedness with TriplePoint, subject to certain limited exceptions, Agri-Energy is only permitted to pay dividends if the following conditions are satisfied: (i) the Retrofit of the Agri-Energy Facility is complete and the facility is producing commercial volumes of isobutanol, (ii) its net worth is greater than or equal to \$10.0 million, and (iii) no event of default has occurred and is continuing under the agreement. Agri-Energy is also permitted to make dividends and distributions to Gevo, Inc. for certain defined purposes related to the Convertible Notes. Accordingly, even if we decide to pay cash dividends in the future, we may not be able to access cash generated by Agri-Energy if amounts are then outstanding pursuant to such agreements.

We have never paid cash dividends on our common stock and we do not expect to pay cash dividends on our common stock at any time in the foreseeable future. The future payment of dividends directly depends upon our future earnings, capital requirements, financial requirements and other factors that our board of directors will consider. As a result, only appreciation of the price of our common stock, which may never occur, will provide a return to stockholders. Investors seeking cash dividends should not invest in our common stock.

If securities or industry analysts do not publish research or reports about our business, or publish negative reports about our business, our stock price and trading volume could decline. The trading market for our common stock will be influenced by the research and reports that securities or industry analysts publish about us or our business.

We do not have any control over these analysts. If one or more of the analysts who cover us downgrade our stock or change their opinion of our stock, our stock price would likely decline which in turn would likely cause a decline in the value of the warrants. If one or more of these analysts cease coverage of the Company or fail to regularly publish reports on us, we could lose visibility in the financial markets, which could cause our stock price and the price of the warrants to decline or the trading volume of such securities to decline.

We are subject to anti-takeover provisions in our Certificate of Incorporation, our amended and restated bylaws and under Delaware law that could delay or prevent an acquisition of the Company, even if the acquisition would be beneficial to our stockholders.

Provisions in our Certificate of Incorporation and our amended and restated bylaws may delay or prevent an acquisition of us. Among other things, our Certificate of Incorporation and amended and restated bylaws provide for a board of directors that is divided into three classes with staggered three-year terms, provide that all stockholder action must be effected at a duly called meeting of the stockholders and not by a consent in writing, and further provide that only our board of directors may call a special meeting of the stockholders. These provisions may also frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, who are responsible for appointing the members of our management team. Furthermore, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which prohibits, with some exceptions, stockholders owning in excess of 15% of our outstanding voting stock from merging or combining with us. Finally, our charter documents establish advance notice requirements for nominations for election to our board of directors and for proposing matters that can be acted upon at stockholder meetings. Although we believe these provisions together provide an opportunity to receive higher bids by

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requiring potential acquirers to negotiate with our board of directors, they would apply even if an offer to acquire the Company may be considered beneficial by some stockholders.

We may not be able to comply with all applicable listing requirements or standards of the NASDAQ Capital Market and NASDAQ could delist our common stock.

Our common stock is listed on the NASDAQ Capital Market. In order to maintain that listing, we must satisfy minimum financial and other continued listing requirements and standards. There can be no assurance that we will be able to comply with applicable listing standards. In the event that our common stock is not eligible for quotation on another market or exchange, trading of our common stock could be conducted in the over-the-counter market or on an electronic bulletin board established for unlisted securities such as the Pink Sheets or the OTC Bulletin Board. In such event, it could become more difficult to dispose of, or obtain accurate price quotations for, our common stock, and there would likely be a reduction in our coverage by security analysts and the news media, which could cause the price of our common stock to decline further. In addition, it may be difficult for us to raise additional capital if we are not listed on a major exchange. Furthermore, it would be a fundamental change under the indentures governing the Convertible Notes if our common stock is not listed on a national securities exchange. In such circumstance we would be required to offer to repurchase the Convertible Notes at 100% of principal plus accrued and unpaid interest to, but not including, the repurchase date. We would also be required to pay the holders of the 2017 Notes a fundamental change make-whole payment equal to the aggregate amount of interest that would have otherwise been payable on such notes, to, but not including, the maturity date of such notes. Repurchase offers for the 2022 Notes would be prohibited by the agreements governing our secured indebtedness with TriplePoint.

Certain Risks Relating to our Business and Strategy

Our auditors have expressed substantial doubt about our ability to continue as a going concern, which may hinder our ability to obtain further financing.

Our audited financial statements for the year ended December 31, 2014, were prepared under the assumption that we would continue our operations as a going concern. Our independent registered public accounting firm for the year ended December 31, 2014 included a going concern emphasis of matter paragraph in its report on our financial statements as of, and for the year ended, December 31, 2014, indicating that the amount of working capital at December 31, 2014 was not sufficient to meet the cash requirements to fund planned operations through December 31, 2015 without additional sources of cash, which raises substantial doubt about our ability to continue as a going concern. Uncertainty concerning our ability to continue as a going concern may hinder our ability to obtain future financing. Continued operations and our ability to continue as a going concern are dependent on our ability to obtain additional funding in the near future and thereafter, and there are no assurances that such funding will be available to us at all or will be available in sufficient amounts or on reasonable terms. Our financial statements do not include any adjustments that may result from the outcome of this uncertainty. Without additional funds from private and/or public offerings of debt or equity securities, sales of assets, sales of our licenses of intellectual property or technologies, or other transactions, we will exhaust our resources and will be unable to continue operations. If we cannot continue as a viable entity, our stockholders would likely lose most or all of their investment in us.

We have a history of net losses, and we may not achieve or maintain profitability.

We have incurred net losses of \$28.2 million, \$41.1 million, \$66.8 million, and \$60.7 million during the nine months ended September 30, 2015 and the years ended December 31, 2014, 2013, and 2012, respectively. As of September 30, 2015, we had an accumulated deficit of \$331.5 million. We expect to incur losses and negative cash flows from operating activities for the foreseeable future. We currently derive revenue from the sale of isobutanol, ethanol and related products at the Agri-Energy Facility, although over certain periods of time, we may and have operated the plant for the sole production of ethanol and related products to maximize cash flows.

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Additionally, we have generated limited revenue from the sale of products such as ATJ fuel produced from isobutanol that has been used for engine qualification and flight demonstration by the U.S. Air Force and other branches of the U.S. military. If our existing grants and cooperative agreements are canceled prior to the expected end dates or we are unable to obtain new grants, cooperative agreements or product supply contracts, our revenues could be adversely affected.

Furthermore, we expect to spend significant amounts on the further development and commercial implementation of our technology. We also expect to spend significant amounts acquiring and deploying additional equipment to attain final product specifications that may be required by future customers, acquiring or otherwise gaining access to additional ethanol plants and Retrofitting them for isobutanol production, on marketing, general and administrative expenses associated with our planned growth, on management of operations as a public company, and on debt service obligations. In addition, the cost of preparing, filing, prosecuting, maintaining and enforcing patent, trademark and other intellectual property rights and defending ourselves against claims by others that we may be violating their intellectual property rights may be significant.

In particular, over time, costs related to defending the validity of our issued patents and challenging the validity of the patents of others at the U.S. Patent and Trademark Office (USPTO) may be significant. As a result, even if our revenues increase substantially, we expect that our expenses will exceed revenues for the foreseeable future. We do not expect to achieve profitability during the foreseeable future, and may never achieve it. If we fail to achieve profitability, or if the time required to achieve profitability is longer than we anticipate, we may not be able to continue our business. Even if we do achieve profitability, we may not be able to sustain or increase profitability on a quarterly or annual basis.

We will require substantial additional financing to achieve our goals, and a failure to obtain this capital when needed or on acceptable terms could force us to delay, limit, reduce or terminate our development and commercialization efforts.

Significant portions of our resources have been dedicated to research and development, as well as demonstrating the effectiveness of our technology through the Retrofit of the Agri-Energy Facility. We believe that we will continue to expend substantial resources for the foreseeable future on further developing our technologies, developing future markets for our isobutanol and accessing and Retrofitting facilities necessary for the production of isobutanol on a commercial scale. These expenditures will include costs associated with research and development, accessing existing ethanol plants, Retrofitting or otherwise modifying the plants (including the Redfield Facility, as defined below) to produce isobutanol, obtaining government and regulatory approvals, acquiring or constructing storage facilities and negotiating supply agreements for the isobutanol we produce. In addition, other unanticipated costs may arise. Because the costs of developing our technology at a commercial scale are highly uncertain, we cannot reasonably estimate the amounts necessary to successfully commercialize our production.

To date, we have funded our operations primarily through equity offerings, issuances of debt, borrowing under our secured debt financing arrangements and revenues earned primarily from the sale of ethanol. Based on our current plans and expectations, we will require additional funding to achieve our goals. In addition, the cost of preparing, filing, prosecuting, maintaining and enforcing patent, trademark and other intellectual property rights and defending against claims by others that we may be violating their intellectual property rights may be significant. Moreover, our plans and expectations may change as a result of factors currently unknown to us, and we may need additional funds sooner than planned and may seek to raise additional funds through public or private debt or equity financings in the near future. We may also choose to seek additional capital sooner than required due to favorable market conditions or strategic considerations.

Our future capital requirements will depend on many factors, including:

the timing of, and costs involved in developing and optimizing our technologies for full-scale commercial production of isobutanol;

the timing of, and costs involved in accessing existing ethanol plants;

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the timing of, and costs involved in Retrofitting the plants we access with our technologies;

the costs involved in establishing enhanced yeast seed trains;

the costs involved in acquiring and deploying additional equipment to attain final product specifications that may be required by future customers;

the cost of operating, maintaining and increasing production capacity of the Retrofitted plants;

our ability to negotiate agreements supplying suitable biomass to our plants, and the timing and terms of those agreements;

the timing of, and the costs involved in developing adequate storage facilities for the isobutanol we produce;

our ability to gain market acceptance for isobutanol as a specialty chemical, gasoline blendstock and as a raw material for the production of hydrocarbons;

our ability to negotiate supply agreements for the isobutanol we produce, and the timing and terms of those agreements, including terms related to sales price;

our ability to negotiate sales of our isobutanol for full-scale production of butenes and other industrially useful chemicals and fuels, and the timing and terms of those sales, including terms related to sales price;

our ability to sell the iDGs left as a co-product of fermenting isobutanol from corn as animal feedstock;

our ability to establish and maintain strategic partnerships, licensing or other arrangements and the timing and terms of those arrangements; and

the cost of preparing, filing, prosecuting, maintaining, defending and enforcing patent, trademark and other intellectual property claims, including litigation costs and the outcome of such litigation.

Additional funds may not be available when we need them, on terms that are acceptable to us, or at all. In addition, our ability to raise additional funds will be subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint. If needed funds are not available to us on a timely basis, we may be required to delay, limit, reduce or terminate:

our research and development activities;

our plans to access and/or Retrofit existing ethanol facilities;

our production of isobutanol at Retrofitted plants;

our efforts to prepare, file, prosecute, maintain and enforce patent, trademark and other intellectual property rights and defend against claims by others that we may be violating their intellectual property rights; and/or

our activities in developing storage capacity and negotiating supply agreements that may be necessary for the commercialization of our isobutanol production.

Our ability to compete may be adversely affected if we are unsuccessful in defending against any claims by competitors or others that we are infringing upon their intellectual property rights.

The various bioindustrial markets in which we plan to operate are subject to frequent and extensive litigation regarding patents and other intellectual property rights. In addition, many companies in intellectual property-dependent industries, including the renewable energy industry, have employed intellectual property litigation as a means to gain an advantage over their competitors. As a result, we may be required to defend against claims of intellectual property infringement that may be asserted by our competitors against us and, if the outcome of any such litigation is adverse to us, it may affect our ability to compete effectively.

Litigation, interferences, opposition proceedings or other intellectual property proceedings inside and outside of the U.S. may divert management time from focusing on business operations, could cause us to spend significant

amounts of money and may have no guarantee of success. Any future intellectual property litigation could also force us to do one or more of the following:

stop selling, incorporating, manufacturing or using our products that use the subject intellectual property;

obtain from a third party asserting its intellectual property rights, a license to sell or use the relevant technology, which license may not be available on reasonable terms, or at all;

redesign those products or processes, such as our process for producing isobutanol, that use any allegedly infringing or misappropriated technology, which may result in significant cost or delay to us, or which redesign could be technically infeasible;

pay attorneys' fees and expenses; or

pay damages, including the possibility of treble damages in a patent case if a court finds us to have willfully infringed certain intellectual property rights.

We are aware of a significant number of patents and patent applications relating to aspects of our technologies filed by, and issued to, third parties. We cannot assure you that we will ultimately prevail if any of this third-party intellectual property is asserted against us.

Our Retrofit of the Agri-Energy Facility is our first commercial Retrofit and, as a result, our full-scale commercial production of isobutanol at the Agri-Energy Facility could be delayed or we could experience significant cost overruns in comparison to our current estimates.

In September 2010, we acquired ownership of the Agri-Energy Facility in Luverne, Minnesota. To date, we have successfully demonstrated fermentation operations at commercial scale combined with the use of our GIFT[®] separation system using corn mash feedstock at the Agri-Energy Facility. We may incur additional costs in order to further optimize the production of isobutanol, or both isobutanol and ethanol simultaneously, at the Agri-Energy Facility. Such funds may not be available when we need them, on terms that are acceptable to us or at all. In addition, our ability to raise additional funds will be subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint. If additional funding is not available to us, or not available on terms acceptable to us, our ability to optimize the isobutanol production technology currently in place at the Agri-Energy Facility and achieve full-scale commercial production at this facility may be limited. Such a result could reduce the scope of our business plan and have an adverse effect on our results of operations.

The Agri-Energy Facility is our first commercial isobutanol production facility, and, as such, we may be unable to produce planned quantities of isobutanol and any such production may be more costly than we anticipate.

Since commencing initial startup operations for the production of isobutanol at the Agri-Energy Facility in May 2012, we have encountered some production challenges, including contamination issues, which have resulted in lower than planned isobutanol production. While we have resumed limited production of isobutanol at the Agri-Energy Facility, this is our first commercial isobutanol production facility and we may encounter further production challenges, including, but not limited to, being unable to manage plant contamination, and we may need to add additional processing steps or incur additional capital expenditures to achieve our target customers' product specifications. Any

such production challenges may delay our ramp up of production capacity, prevent us from producing significant quantities of isobutanol, significantly increase our cost to produce isobutanol, or cause us to switch to producing ethanol or produce both products simultaneously, which could have a material adverse effect on our business, financial condition and results of operations.

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Some of our Retrofits, including the Retrofit of the Agri-Energy Facility, may include additional equipment that we believe will allow us to switch between ethanol and isobutanol production, or produce both products simultaneously, but we cannot guarantee that we will be successful in switching between isobutanol and ethanol production, or producing both products simultaneously, in a timely or efficient manner at these facilities.

In July 2014, we began more consistent co-production of isobutanol and ethanol at our Agri-Energy Facility with one fermenter utilized for isobutanol production and three fermenters utilized for ethanol production. We believe that the capability to switch between ethanol and isobutanol production, or produce both products simultaneously (as evidenced by our Agri-Energy Facility) will, subject to regulatory factors and depending on market conditions, mitigate certain significant risks associated with startup operations for isobutanol production, but there can be no assurance that we will be able to revert to ethanol production, or produce both products simultaneously at future plants, or that it will make sense, based on the then-current economic conditions for the production of ethanol, to do so. Even if we are able to revert to ethanol production, or produce both products simultaneously at certain facilities, those facilities may produce ethanol less efficiently or in lower volumes than they did prior to the Retrofit and such ethanol production may not generate positive economic returns. If we are unable to produce isobutanol at the volumes, rates and costs that we expect and are unable to revert to ethanol production at full capacity, or produce both products simultaneously, we would be unable to match the facility's historical economic performance and our business, financial condition and results of operations would be materially adversely affected.

Fluctuations in the price of corn and other feedstocks may affect our cost structure.

Our approach to the biofuels and chemicals markets will be dependent on the price of corn and other feedstocks that will be used to produce ethanol and isobutanol. A decrease in the availability of plant feedstocks or an increase in the price may have a material adverse effect on our financial condition and operating results. At certain levels, prices may make these products uneconomical to use and produce, as we may be unable to pass the full amount of feedstock cost increases on to our customers.

The price and availability of corn and other plant feedstocks may be influenced by general economic, market and regulatory factors. These factors include weather conditions, farming decisions, government policies and subsidies with respect to agriculture and international trade, and global demand and supply. For example, corn prices may increase significantly in response to drought conditions in the Midwestern region of the U.S. and any resulting decrease in the supply of corn could lead to the restriction of corn supplies, which in turn could cause further increases in the price of corn. The significance and relative impact of these factors on the price of plant feedstocks is difficult to predict, especially without knowing what types of plant feedstock materials we may need to use.

Fluctuations in the price and availability of natural gas may harm our performance.

The ethanol facilities that we have Retrofitted or plan to Retrofit to produce isobutanol, use significant amounts of natural gas to produce ethanol. After Retrofit with our GIFT® technology, these facilities will continue to require natural gas to produce isobutanol and/or ethanol. Accordingly, our business is dependent upon natural gas supplied by third parties. The prices for and availability of natural gas are subject to volatile market conditions. These market conditions are affected by factors beyond our control, such as weather conditions, overall economic conditions and governmental regulations. Should the price of natural gas increase, our performance could suffer. Likewise, disruptions in the supply of natural gas could have a material impact on our business and results of operations.

Fluctuations in petroleum prices and customer demand patterns may reduce demand for biofuels and bio-based chemicals.

We anticipate marketing our biofuel as an alternative to petroleum-based fuels. Therefore, if the price of oil falls, any revenues that we generate from biofuel products could decline, and we may be unable to produce products

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that are a commercially viable alternative to petroleum-based fuels. Additionally, demand for liquid transportation fuels, including biofuels, may decrease due to economic conditions or otherwise. We will encounter similar risks in the chemicals industry, where declines in the price of oil may make petroleum-based hydrocarbons less expensive, which could reduce the competitiveness of our bio-based alternatives.

Changes in the prices of distiller's grains and iDGs could have a material adverse effect on our financial condition.

We sell distiller's grains as a co-product from the production of ethanol at the Agri-Energy Facility during any period in which the production of isobutanol is temporarily paused and our management decides, based on the then-current economic conditions for the production of ethanol, that the Agri-Energy Facility will be temporarily reverted to ethanol production, or during periods in which we produce both isobutanol and ethanol simultaneously. We may also sell distiller's grains produced by other ethanol facilities that we acquire, enter into a joint venture or tolling arrangement with, or license to in the future. We also sell the iDGs that are produced as a co-product of our commercial isobutanol production. Distiller's grains and iDGs compete with other animal feed products, and decreases in the prices of these other products could decrease the demand for and price of distiller's grains and iDGs. Additionally, we have produced limited quantities of commercial iDGs and, as such, there is a risk that our iDGs may not meet market requirements. If the price of distiller's grains and iDGs decreases or our iDGs do not meet market requirements, our revenue from the sale of distiller's grains and future revenue from the sale of iDGs could suffer, which could have a material adverse effect on our financial condition.

To the extent that we produce ethanol at accessed plants before commencing isobutanol production, or during periods in which we make the strategic decision to revert to ethanol production, or produce both products simultaneously, we will be vulnerable to fluctuations in the price of and cost to produce ethanol.

We believe that, like the Agri-Energy Facility, the other ethanol production facilities we access can continue to produce ethanol during most of the Retrofit process. In certain cases, we may obtain income from this ethanol production. Further, we have designed our isobutanol production technology (including the Retrofit of the Agri-Energy Facility) to allow us to revert to ethanol production at certain facilities, or produce both products simultaneously, when the economic conditions for ethanol production make such production desirable. Our earnings from ethanol revenue will be dependent on the price of, demand for and cost to produce ethanol. Decreases in the price of ethanol, whether caused by decreases in gasoline prices, changes in regulations, seasonal fluctuations or otherwise, will reduce our revenues, while increases in the cost of production will reduce our margins. To the extent that ethanol production costs increase or price decreases, earnings from ethanol production could suffer, which could have a material adverse effect on our business.

In recent years, the spread between ethanol and corn prices has fluctuated widely. Fluctuations are likely to continue to occur. Unfavorable weather conditions led to a smaller than expected corn harvest across affected areas of the U.S. Midwest region in the fall of 2012. This, along with smaller corn carryover in the last two crop years and higher export demand for corn led to higher corn prices during 2012 and the first half of 2013 and increased corn price volatility. The price of ethanol during that time did not keep pace with rising corn prices which resulted in lower and, in some instances negative, operating margins in the ethanol industry. As a result, during the fourth quarter of 2012, our management determined that the production of ethanol at the Agri-Energy Facility would not produce a positive margin versus maintaining the Agri-Energy Facility at idle. Likewise, the recent decline in oil prices has translated into lower gasoline prices in the U.S., which have resulted in lower ethanol prices and ethanol profit margins. It is unclear when or if ethanol prices may rebound, and consequently, when or if near-term ethanol margins will increase from current levels. Our inability to rely on ethanol production as an alternative revenue source due to rising corn prices or otherwise could have a material adverse effect on our business, financial condition and results of operations.

Sustained narrow commodity margins may cause us to operate at a loss or to reduce or suspend production of ethanol and/or isobutanol at the Agri-Energy Facility, and we may or may not be able to recommence production when margins improve.

Our results from operations will be substantially dependent on commodity prices. Many of the risks associated with volatile commodity prices, including fluctuations in feedstock costs and natural gas costs, apply both to the production of ethanol and isobutanol. Sustained unfavorable commodity prices may cause our combined revenues from sales of ethanol, isobutanol and related co-products to decline below our marginal cost of production. As market conditions change, our management may decide to reduce or suspend production of ethanol and/or isobutanol at the Agri-Energy Facility.

The decision to reduce or suspend production at a facility may create additional costs related to continued maintenance, termination of staff, certain unavoidable fixed costs, termination of customer contracts and increased costs to increase or recommence production in the future. These costs may make it difficult or impractical to increase or recommence production of ethanol and/or isobutanol at the Agri-Energy Facility even if margins improve. In addition, any reduction or suspension of the production of ethanol and/or isobutanol at the Agri-Energy Facility may slow or stop our commercialization process, which could have a material adverse effect on our business, financial condition and results of operations.

We may not be successful in the development of individual steps in, or an integrated process for, the production of commercial quantities of isobutanol from plant feedstocks in a timely or economic manner, or at all.

As of the date of this prospectus supplement, we have produced only limited quantities of isobutanol at commercial scale and we may not be successful in increasing our production from these limited startup production levels to nameplate production levels. The production of isobutanol requires multiple integrated steps, including:

obtaining the plant feedstocks;

treatment with enzymes to produce fermentable sugars;

fermentation by organisms to produce isobutanol from the fermentable sugars;

distillation of the isobutanol to concentrate and separate it from other materials;

purification of the isobutanol; and

storage and distribution of the isobutanol.

Our future success depends on our ability to produce commercial quantities of isobutanol in a timely and economic manner. Our biocatalysts have not yet produced isobutanol at nameplate production levels. While we have produced isobutanol using our biocatalysts at our laboratories in Colorado, at the one MGPY demonstration facility and at the Agri-Energy Facility, such production was not at full nameplate capacity of a commercial facility. Our production since the fourth quarter of 2013 has utilized a corn mash feedstock, but risk still exists for achieving nameplate capacity at the Agri-Energy Facility. The risk of contamination and other problems rises as we increase the scale of

our isobutanol production. If we are unable to successfully manage these risks, we may encounter difficulties in achieving our target isobutanol production yield, rate, concentration or purity at a commercial scale, which could delay or increase the costs involved in commercializing our isobutanol production. In addition, we have limited experience sourcing large quantities of feedstocks and in storing and/or distributing significant volumes of isobutanol. The technological and logistical challenges associated with each of the processes involved in production, sale and distribution of isobutanol are extraordinary, and we may not be able to resolve any difficulties that arise in a timely or cost effective manner, or at all. Even if we are successful in developing an economical process for converting plant feedstocks into commercial quantities of isobutanol, we may not be able to adapt such process to other biomass raw materials, including cellulosic biomass.

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Prior to commencement of the Agri-Energy Facility Retrofit, neither we nor ICM had ever built (through Retrofit or otherwise) or operated a commercial isobutanol facility. We assume that we understand how the engineering and process characteristics of the one MGPY demonstration facility will scale up to larger facilities, but these assumptions may prove to be incorrect. Accordingly, we cannot be certain that we can consistently produce isobutanol in an economical manner in commercial quantities. If our costs to build large-scale commercial isobutanol facilities are significantly higher than we expect or if we fail to consistently produce isobutanol economically on a commercial scale or in commercial volumes, our commercialization of isobutanol and our business, financial condition and results of operations will be materially adversely affected.

We have entered into a joint venture with Redfield Energy, LLC to Retrofit the Redfield Facility (as defined below), and our production of isobutanol at the Redfield Facility could be delayed or we could experience significant cost overruns in comparison to our current estimates.

In June 2011, we acquired access to a 50 MGPY ethanol production facility located near Redfield, South Dakota (the Redfield Facility), pursuant to our joint venture with Redfield Energy, LLC, a South Dakota limited liability company (Redfield). In order to Retrofit this facility to produce isobutanol we will need access to additional capital in order to commence the Retrofit. Although we will be able to apply our experience from the Retrofit of the Agri-Energy Facility, no two ethanol facilities are exactly alike, and each Retrofit will require individualized engineering and design work. Cost overruns or other unexpected difficulties unique to the Redfield Facility could cause the Retrofit to cost more than we anticipate which could further increase our need for funding. Such funds may not be available when we need them, on terms that are acceptable to us or at all, which could delay our full-scale commercial production of isobutanol at this facility. In addition, our ability to raise additional funds will be subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint. If additional funding is not available to us, or not available on terms acceptable to us, our ability to complete the Retrofit of the Redfield Facility, which is not yet underway, or acquire access to or Retrofit additional ethanol plants may be limited. Such a result could reduce the scope of our business plan and have an adverse effect on our results of operations.

We may not be able to successfully identify and acquire access to additional ethanol production facilities suitable for efficient Retrofitting, or acquire access to sufficient capacity to be commercially viable or meet customer demand.

Our strategy currently includes accessing and Retrofitting, either independently or with potential development partners or licensees, existing ethanol facilities for the production of large quantities of isobutanol for commercial distribution and sale. In addition to the Agri-Energy Facility, we have acquired access to the 50 MGPY Redfield Facility pursuant to our joint venture with Redfield. However, we may not find future development partners with whom we can implement this growth strategy, and we may not be able to identify facilities suitable for joint venture, acquisition, lease or license.

Even if we successfully identify a facility suitable for efficient Retrofitting, we may not be able to acquire access to such facility in a timely manner, if at all. The owners of the ethanol facility may reach an agreement with another party, refuse to consider a joint venture, acquisition, lease or license, or demand more or different consideration than we are willing to provide. In particular, if the profitability of ethanol production increases, plant owners may be less likely to consider modifying their production, and thus may be less willing to negotiate with us or agree to allow us to Retrofit their facilities for isobutanol production. We may also find that it is necessary to offer special terms, incentives and/or rebates to owners of ethanol facilities that allow us to access and Retrofit their facilities while our production technology is being proven on a commercial scale. Even if the owners of a facility are interested in reaching an agreement that grants us access to the plant, negotiations may take longer or cost more than we expect, and we may never achieve a final agreement. Further, our ability to raise additional funds will be subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint, and we may not be able to raise capital on acceptable terms, or at all, to finance our joint venture,

acquisition, participation or lease of facilities.

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Even if we are able to access and Retrofit several facilities, we may fail to access enough capacity to be commercially viable or meet the volume demands or minimum requirements of our customers, including pursuant to definitive supply or distribution agreements that we may enter into, which may subject us to monetary damages. Failure to acquire access to sufficient capacity in a timely manner and on favorable terms may slow or stop our commercialization process, which could have a material adverse effect on our business, financial condition and results of operations.

Once we acquire access to ethanol facilities, we may be unable to successfully Retrofit them to produce isobutanol, or we may not be able to Retrofit them in a timely and cost-effective manner.

For each ethanol production facility to which we acquire access, we will be required to obtain numerous regulatory approvals and permits to Retrofit and operate the facility. In the U.S., these include such items as a modification to the air permit, fuel registration with the EPA, ethanol excise tax registration and others. These requirements may not be satisfied in a timely manner, or at all. Later-enacted federal and state governmental requirements may also substantially increase our costs or delay or prevent the completion of a Retrofit, which could have a material adverse effect on our business, financial condition and results of operations.

No two ethanol facilities are exactly alike, and each Retrofit will require individualized engineering and design work. There is no guarantee that we or any contractor we retain will be able to successfully design a commercially viable Retrofit, or properly complete the Retrofit once the engineering plans are completed. Prior to commencement of the Agri-Energy Facility Retrofit, neither we nor ICM had ever built, via Retrofit or otherwise, a full-scale commercial isobutanol facility. Despite our experience with the Retrofit of the Agri-Energy Facility, our estimates of the capital costs that we will need to incur to Retrofit a commercial-scale ethanol facility may prove to be inaccurate, and each Retrofit may cost materially more to engineer and build than we currently anticipate. For example, our estimates assume that each plant we Retrofit will be performing at full production capacity, and we may need to expend substantial sums to repair or modify underperforming facilities prior to Retrofit.

Our Retrofit design to convert existing ethanol production capacity to isobutanol production capacity was developed in cooperation with ICM and is based on ICM technology. There is no guarantee that this Retrofit design will be compatible with existing ethanol facilities that do not utilize ICM technology. Before we can Retrofit such facilities, we may need to modify them to be compatible with our Retrofit design. This may require significant additional expenditure of time and money, and there is no guarantee such modification will be successful.

Furthermore, the Retrofit of acquired facilities will be subject to the risks inherent in the build-out of any manufacturing facility, including risks of delays and cost overruns as a result of factors that may be out of our control, such as delays in the delivery of equipment and subsystems or the failure of such equipment to perform as expected once delivered. In addition, we will depend on third-party relationships in expanding our isobutanol production capacity and such third parties may not fulfill their obligations to us under our arrangements with them. Delays, cost overruns or failures in the Retrofit process will slow our commercial production of isobutanol and harm our performance.

Though our Retrofit design for certain facilities will include the capability to switch between isobutanol and ethanol production, or produce both products simultaneously (as demonstrated by our Agri-Energy Facility), we may be unable to successfully revert to ethanol production, or produce both products simultaneously at certain facilities, or such facilities may produce ethanol less efficiently or in lower volumes than they did before the Retrofit. In addition, we may be unable to secure the necessary regulatory approvals and permits to switch between isobutanol and ethanol production, or produce both products simultaneously, in a timely manner, or at all. Thus, if we fail to achieve commercial levels of isobutanol production at a Retrofitted facility, we may be unable to rely on ethanol production as an alternative or additional revenue source, which could have a material adverse effect on our prospects.

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Our facilities and process may fail to produce isobutanol at the volumes, rates and costs we expect.

Some or all of the facilities we choose to Retrofit may be in locations distant from corn or other feedstock sources, which could increase our feedstock costs or prevent us from acquiring sufficient feedstock volumes for commercial production. General market conditions might also cause increases in feedstock prices, which could likewise increase our production costs.

Even if we secure access to sufficient volumes of feedstock, the facilities we Retrofit for isobutanol production may fail to perform as expected. The equipment and subsystems installed during the Retrofit may never operate as planned. Our systems may prove incompatible with the original facility, or require additional modification after installation. Our biocatalyst may perform less efficiently than it did in testing, if at all. Contamination of plant equipment may require us to replace our biocatalyst more often than expected, require unplanned installation or replacement of equipment, or cause our fermentation process to yield undesired or harmful by-products. Likewise, our feedstock may contain contaminants like wild yeast, which naturally ferments feedstock into ethanol. The presence of contaminants, such as wild yeast, in our feedstock could reduce the purity of the isobutanol that we produce and require us to invest in more costly isobutanol separation processes or equipment. Unexpected problems may force us to cease or delay production and the time and costs involved with such delays may prove prohibitive. Any or all of these risks could prevent us from achieving the production throughput and yields necessary to achieve our target annualized production run rates and/or to meet the volume demands or minimum requirements of our customers, including pursuant to definitive supply or distribution agreements that we may enter into, which may subject us to monetary damages. Failure to achieve these rates or meet these minimum requirements, or achieving them only after significant additional expenditures, could substantially harm our commercial performance.

We may be unable to produce isobutanol in accordance with customer specifications.

Even if we produce isobutanol at our targeted rates, we may be unable to produce isobutanol that meets customer specifications, including those defined in ASTM D7862 Standard Specification for Butanol for Blending with Gasoline for Use as Automotive Spark-Ignition Engine Fuel. We may need to add additional processing steps or incur capital expenditures in order to meet customer specifications which could add significant costs to our production process. For example, at the Agri-Energy Facility we intend to acquire and install a product purification column, which we believe will allow us to achieve our target customers' product specifications without continuing to rely on third-party contract tolling providers. If we fail to meet specific product or volume specifications contained in a supply agreement, the customer may have the right to seek an alternate supply of isobutanol and/or terminate the agreement completely, and we could be required to pay shortfall fees or otherwise be subject to damages. A failure to successfully meet the specifications of our potential customers could decrease demand, and significantly hinder market adoption of our products.

We lack significant experience operating commercial-scale ethanol and isobutanol facilities, and may encounter substantial difficulties operating commercial plants or expanding our business.

We have very limited experience operating commercial-scale ethanol and isobutanol facilities. Accordingly, we may encounter significant difficulties operating at a commercial scale. We believe that our future facilities will, like the Agri-Energy Facility, be able to continue producing ethanol during much of the Retrofit process. We will need to successfully administer and manage this production. Though ICM and the employees of Agri-Energy and Redfield are experienced in the operation of ethanol facilities, and our future development partners or the entities that we acquire may likewise have such experience, we may be unable to manage ethanol-producing operations, especially given the possible complications associated with a simultaneous Retrofit. Once we complete a commercial Retrofit, operational difficulties may increase, because neither we nor anyone else has significant experience operating a pure isobutanol fermentation facility at a commercial scale. The skills and knowledge gained in operating commercial ethanol facilities or small-scale isobutanol plants may prove insufficient for successful operation of a large-scale isobutanol

facility, and we may be required to expend significant time and

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money to develop our capabilities in isobutanol facility operation. We may also need to hire new employees or contract with third parties to help manage our operations, and our performance will suffer if we are unable to hire qualified parties or if they perform poorly.

We may face additional operational difficulties as we further expand our production capacity. Integrating new facilities with our existing operations may prove difficult. Rapid growth, resulting from our operation of, or other involvement with, isobutanol facilities or otherwise, may impose a significant burden on our administrative and operational resources. To effectively manage our growth and execute our expansion plans, we will need to expand our administrative and operational resources substantially and attract, train, manage and retain qualified management, technicians and other personnel. We may be unable to do so. Failure to meet the operational challenges of developing and managing increased production of isobutanol and/or ethanol, or failure to otherwise manage our growth, may have a material adverse effect on our business, financial condition and results of operations.

We may have difficulty adapting our technology to commercial-scale fermentation, which could delay or prevent our commercialization of isobutanol.

While we have demonstrated the ability to produce isobutanol under the demonstration plant operating conditions and under commercial scale operating conditions at the Agri-Energy Facility, and we have succeeded in reaching our commercial fermentation performance targets for isobutanol concentration, fermentation productivity and isobutanol yield in laboratory tests, we have not yet reached all performance targets in a commercial plant environment. Ultimately, our yeast biocatalyst may not be able to meet the commercial performance targets at nameplate production capacity in a timely manner, or ever. In addition, the risk of contamination and other problems may increase as we seek to ramp up our production capacity, which could negatively impact our cost of production or require additional capital expenditures to solve for these problems. If we encounter difficulties in optimizing our production, our commercialization of isobutanol and our business, financial condition and results of operations will be materially adversely affected.

We may have difficulties gaining market acceptance and successfully marketing our isobutanol to customers, including chemical producers, fuel distributors and refiners.

A key component of our business strategy is to market our isobutanol to chemical producers, fuels distributors and refiners. We have no experience marketing isobutanol on a commercial scale and we may fail to successfully negotiate marketing agreements in a timely manner or on favorable terms. If we fail to successfully market our isobutanol to refiners, fuels distributors and chemical producers, our business, financial condition and results of operations will be materially adversely affected.

We also intend to market our isobutanol to chemical producers for use in making various chemicals such as isobutylene, a type of butene that can be produced through the dehydration of isobutanol. Although a significant market currently exists for isobutylene produced from petroleum, which is widely used in the production of plastics, specialty chemicals, alkylate for gasoline blending and high octane aviation gasoline, no one has successfully created isobutylene on a commercial scale from bio-isobutanol. Therefore, to gain market acceptance and successfully market our isobutanol to chemical producers, we must show that our isobutanol can be converted into isobutylene at a commercial scale. As no company currently dehydrates commercial volumes of isobutanol into isobutylene, we must demonstrate the large-scale feasibility of the process and reach agreements with companies that are willing to invest in the necessary dehydration infrastructure. Failure to reach favorable agreements with these companies, or the inability of their plants to convert isobutanol into isobutylene at sufficient scale, will slow our development in the chemicals market and could significantly affect our profitability.

Obtaining market acceptance in the chemicals industry is complicated by the fact that many potential chemicals industry customers have invested substantial amounts of time and money in developing petroleum-based

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production channels. These potential customers generally have well-developed manufacturing processes and arrangements with suppliers of chemical components, and may display substantial resistance to changing these processes. Pre-existing contractual commitments, unwillingness to invest in new infrastructure, distrust of new production methods and lengthy relationships with current suppliers may all slow market acceptance of isobutanol.

A very limited market currently exists for isobutanol as a fuel or as a gasoline blendstock. Therefore, to gain market acceptance and successfully market our isobutanol to fuels distributors and refiners, we must effectively demonstrate the commercial advantages of using isobutanol over other biofuels and blendstocks, as well as our ability to produce isobutanol reliably on a commercial scale at a sufficiently low cost. We must show that isobutanol is compatible with existing infrastructure and does not damage pipes, engines, storage facilities or pumps. We must also overcome marketing and lobbying efforts by producers of other biofuels and blendstocks, including ethanol, many of whom may have greater resources than we do. If the markets for isobutanol as a fuel or as a gasoline blendstock do not develop as we currently anticipate, or if we are unable to penetrate these markets successfully, our revenue and growth rate could be materially and adversely affected.

We believe that consumer demand for environmentally sensitive products will drive demand among large brand owners for renewable hydrocarbon sources. One of our marketing strategies is to leverage this demand to obtain commitments from large brand owners to purchase products made from our isobutanol by third parties. We believe these commitments will, in turn, promote chemicals industry demand for our isobutanol. If consumer demand for environmentally sensitive products fails to develop at sufficient scale or if such demand fails to drive large brand owners to seek sources of renewable hydrocarbons, our revenue and growth rate could be materially and adversely affected.

We may be reliant on Butamax to develop certain markets for isobutanol.

As part of the License Agreement entered into with Butamax, it was agreed that Butamax would take the lead in developing the markets for on-road gasoline blendstocks. This would entail progressing the required approvals for these markets, as well as managing the marketing and distribution of our isobutanol and our potential licensee's isobutanol in these markets beyond certain minimum volumes. If Butamax is unable to obtain the necessary approvals to sell isobutanol into the on-road gasoline blendstock markets, or if it is unsuccessful in building market demand for isobutanol as an on-road gasoline blendstock, our revenue and growth rate could be materially and adversely affected.

We may be required to pay Butamax royalties for selling isobutanol into certain markets, which could hinder our ability to competitively sell our isobutanol into those markets.

As part of the License Agreement entered into with Butamax, it was agreed that we, and our potential licensees, may be required to pay Butamax royalties for selling isobutanol into the on-road gasoline blendstock markets and the chemical isobutylene applications markets beyond certain minimum volumes. The addition of these royalties may make our isobutanol uncompetitive from a price perspective, which may hinder our ability to sell into these markets. If this is the case, our revenue and growth rate could be materially and adversely affected.

We may face substantial delays in obtaining regulatory approvals for use of our isobutanol in the fuels and chemicals markets, which could substantially hinder our ability to commercialize our products.

Large-scale commercialization of our isobutanol may require approvals from state and federal agencies. Before we can sell isobutanol as a fuel or as a gasoline blendstock directly to large petroleum refiners, we must receive EPA fuel certification. We have filed an EPA Part 79 registration to move our small business registration to a full registration (including Tier 1 EPA testing), but the approval process may require significant time. Approval can be delayed for years, and there is no guarantee of receiving it.

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Additionally, California requires that fuels meet both its fuel certification requirements and a separate state low-carbon fuel standard. Any delay in receiving approval will slow or prevent the commercialization of our isobutanol for fuel markets, which could have a material adverse effect on our business, financial condition and results of operations.

With respect to the chemicals markets, we plan to focus on isobutanol production and sell to companies that can convert our isobutanol into other chemicals, such as isobutylene. However, should we later decide to produce these other chemicals ourselves, we may face similar requirements for EPA and other regulatory approvals. Approval, if ever granted, could be delayed for substantial amounts of time, which could significantly harm the development of our business and prevent the achievement of our goals.

Our isobutanol fermentation process utilizes a genetically modified organism which, when used in an industrial process, is considered a new chemical under the EPA's Toxic Substances Control Act (TSCA). The TSCA requires us to comply with the EPA's Microbial Commercial Activity Notice process to operate plants producing isobutanol using our biocatalysts. The TSCA's new chemicals submission policies may change and additional government regulations may be enacted that could prevent or delay regulatory approval of our isobutanol production.

There are various third-party certification organizations, such as ASTM and Underwriters Laboratories, Inc., involved in standard-setting regarding the transportation, dispensing and use of liquid fuel in the U.S. and abroad. These organizations may change the current standards and additional requirements may be enacted that could prevent or delay approval of our products. The process of seeking required approvals and the continuing need for compliance with applicable standards may require the expenditure of substantial resources, and there is no guarantee that we will satisfy these standards in a timely manner, if ever.

In addition, to Retrofit or otherwise modify ethanol facilities and operate the Retrofitted and modified plants to produce isobutanol, we will need to obtain and comply with a number of permit requirements. As a condition to granting necessary permits, regulators may make demands that could increase our Retrofit, modification or operations costs, and permit conditions could also restrict or limit the extent of our operations, which could delay or prevent our commercial production of isobutanol. We cannot guarantee that we will be able to meet all regulatory requirements or obtain and comply with all necessary permits to complete our planned ethanol plant Retrofits, and failure to satisfy these requirements in a timely manner, or at all, could have a substantial negative effect on our performance.

Jet fuels must meet various statutory and regulatory requirements before they may be used in commercial aviation. In the U.S., the use of specific jet fuels is regulated by the Federal Aviation Administration (FAA). Rather than directly approving specific fuels, the FAA certifies individual aircraft for flight. This certification includes authorization for an aircraft to use the types of fuels specified in its flight manual. To be included in an aircraft's flight manual, the fuel must meet standards set by ASTM. The current ASTM requirements do not permit the use of jet fuel derived from isobutanol, and we will need to give ASTM sufficient data to justify creating a new standard applicable to ATJ fuel. Though our work testing isobutanol-based ATJ fuel with the U.S. Air Force Research Laboratory has provided us with data we believe ASTM will take into consideration, the process of seeking required approvals and the continuing need for compliance with applicable statutes and regulations will require the expenditure of substantial resources. The full ASTM specification for our ATJ fuel is expected to be issued in early 2016 but due to inherent uncertainty in the regulatory process we cannot guarantee that ASTM certification will be received in a timely manner, or at all. Failure to obtain regulatory approval in a timely manner, or at all, could have a significant negative effect on our operations.

We may be unable to successfully negotiate final, binding terms related to our current non-binding isobutanol supply and distribution agreements, which could harm our commercial prospects.

In addition to a limited number of definitive supply and distribution agreements, we have agreed to preliminary terms regarding supplying isobutanol or the products derived from it to various companies for their use or further

distribution. We may be unable to negotiate final terms with these or other companies in a timely manner, or at

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all, and there is no guarantee that the terms of any final agreement will be the same or similar to those currently contemplated in our preliminary agreements. Final terms may include less favorable pricing structures or volume commitments, more expensive delivery or purity requirements, reduced contract durations and other adverse changes. Delays in negotiating final contracts could slow our initial isobutanol commercialization, and failure to agree to definitive terms for sales of sufficient volumes of isobutanol could prevent us from growing our business. To the extent that terms in our initial supply and distribution contracts may influence negotiations regarding future contracts, the failure to negotiate favorable final terms related to our current preliminary agreements could have an especially negative impact on our growth and profitability. Additionally, we have not demonstrated that we can meet the production levels contemplated in our current non-binding supply agreements. If our production scale-up proceeds more slowly than we expect, or if we encounter difficulties in successfully completing plant Retrofits, potential customers, including those with whom we have current letters of intent, may be less willing to negotiate definitive supply agreements, or demand terms less favorable to us, and our performance may suffer.

Even if we are successful in consistently producing isobutanol on a commercial scale, we may not be successful in negotiating sufficient supply agreements for our production.

We expect that many of our customers will be large companies with extensive experience operating in the fuels or chemicals markets. As an early stage company, we lack commercial operating experience, and may face difficulties in developing marketing expertise in these fields. Our business model relies upon our ability to successfully negotiate and structure long-term supply agreements for the isobutanol we produce. Certain agreements with existing and potential customers may initially only provide for the purchase of limited quantities from us. For example, our agreement with Alaska Airlines entered into in May 2015 provides for the initial purchase of a limited quantity of our ATJ fuel, and does not obligate Alaska Airlines to purchase any additional quantity of jet fuel in addition to the amount initially purchased. Our ability to increase our sales will depend in large part upon our ability to expand these existing customer relationships into long-term supply agreements. Maintaining and expanding our existing relationships and establishing new ones can require substantial investment without any assurance from customers that they will place significant orders. In addition, many of our potential customers may be more experienced in these matters than we are, and we may fail to successfully negotiate these agreements in a timely manner or on favorable terms which, in turn, may force us to slow our production, delay our acquiring and Retrofitting of additional plants, dedicate additional resources to increasing our storage capacity and/or dedicate resources to sales in spot markets. Furthermore, should we become more dependent on spot market sales, our profitability will become increasingly vulnerable to short-term fluctuations in the price and demand for petroleum-based fuels and competing substitutes.

Even if we are successful in consistently producing isobutanol on a commercial scale, we may not be successful in negotiating pricing terms sufficient to generate positive results from operations at the Agri-Energy Facility.

We expect that many of our customers will be large companies with extensive experience operating in the fuels or chemicals markets. As an early stage company, we lack commercial operating experience, and may face difficulties in developing marketing expertise in these fields. Our business model relies upon our ability to negotiate pricing terms for the isobutanol we produce that generate positive results from the operations of the Agri-Energy Facility. Many of our potential customers may be more experienced in these matters than we are. We may fail to negotiate these agreements in a timely manner, which may force us to dedicate resources to sales in spot markets. If we become more dependent on spot market sales our profitability will become increasingly vulnerable to short-term fluctuations in the price and demand for our products.

Our isobutanol may encounter physical or regulatory issues, which could limit its usefulness as a gasoline blendstock.

In the gasoline blendstock market, isobutanol can be used in conjunction with, or as a substitute for, ethanol and other widely used fuel oxygenates, and we believe our isobutanol will be physically compatible with typical

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gasoline engines. However, there is a risk that under actual engine conditions, isobutanol will face significant limitations, making it unsuitable for use in high percentage gasoline blends. Additionally, current regulations limit gasoline blends to low percentages of isobutanol, and also limit combination isobutanol-ethanol blends. Government agencies may maintain or even increase the restrictions on isobutanol gasoline blends. As we believe that the potential to use isobutanol in higher percentage blends than is feasible for ethanol will be an important factor in successfully marketing isobutanol to refiners, a low blend wall could significantly limit commercialization of isobutanol as a gasoline blendstock.

Our isobutanol may be less compatible with existing refining and transportation infrastructure than we believe, which may hinder our ability to market our product on a large scale.

We developed our business model based on our belief that our isobutanol is fully compatible with existing refinery infrastructure. For example, when making isobutanol blends, we believe that gasoline refineries will be able to pump our isobutanol through their pipes and blend it in their existing facilities without damaging their equipment. If our isobutanol proves unsuitable for such handling, it will be more expensive for refiners to use our isobutanol than we anticipate, and they may be less willing to adopt it as a gasoline blendstock, forcing us to seek alternative purchasers.

Likewise, our plans for marketing our isobutanol are based upon our belief that it will be compatible with the pipes, tanks and other infrastructure currently used for transporting, storing and distributing gasoline. If our isobutanol or products incorporating our isobutanol cannot be transported with this equipment, we will be forced to seek alternative transportation arrangements, which will make our isobutanol and products produced from our isobutanol more expensive to transport and less appealing to potential customers. Reduced compatibility with either refinery or transportation infrastructure may slow or prevent market adoption of our isobutanol, which could substantially harm our performance.

We may be required to obtain additional regulatory approvals for use of our iDGs as animal feed, which could delay our ability to sell iDGs increasing our net cost of production and harming our operating results.

Many of the ethanol plants we initially plan to Retrofit use dry-milled corn as a feedstock. We plan to sell, as animal feed, the iDGs left as a co-product of fermenting isobutanol from dry-milled corn. We believe that this will enable us to offset a significant portion of the expense of purchasing corn for fermentation. We are currently approved to sell iDGs as animal feed through a self-assessed Generally Regarded as Safe (GRAS) process via third party scientific review. In order to improve the value of our iDGs , we are also in the process of obtaining U.S. Food and Drug Administration (FDA) approval for the marketing of our iDGs . We believe obtaining FDA approval will increase the value of our iDGs by offering customers of our iDGs further assurance of the safety of our iDGs . If we make changes in our biocatalyst whereby we can no longer rely on our GRAS process, we would be required to obtain FDA approval for marketing our iDGs . FDA testing and approval can take a significant amount of time, and there is no guarantee that we will ever receive such approval. While we have sold initial quantities of our iDGsTM from the Agri-Energy Facility, if FDA approval is delayed or never obtained, or if we are unable to secure market acceptance for our iDGs , our net cost of production will increase, which may hurt our operating results.

Our development strategy relies on our relationships with ICM and Praj.

In October 2008, we entered into a development agreement and a commercialization agreement with ICM, each of which has since been amended. Pursuant to the terms of the development agreement, ICM engineers helped us install the equipment necessary to test and develop our isobutanol fermentation process at ICM's one MGPY ethanol demonstration facility, and ICM agreed to assist us in running and maintaining the converted plant. We have used the demonstration plant to improve our biocatalysts and to develop processes for commercial-scale production of isobutanol. Under the commercialization agreement, as amended, ICM serves as our exclusive engineering, procurement and construction (EPC) contractor for the new construction and Retrofit of ethanol plants utilizing dry

milled feedstocks of corn or grain sorghum in North America, and we serve as ICM s

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exclusive technology partner for the production of butanols, pentanols and propanols from the fermentation of sugars. In August 2011, we entered into a work agreement with ICM. Pursuant to the terms of the work agreement, ICM provides EPC services for the Retrofit of ethanol plants.

Because ICM has designed a significant number of the current operating ethanol production facilities in the U.S., we believe that our alliance with ICM will allow us to more quickly achieve commercial-scale production of isobutanol. However, ICM may fail to fulfill its obligations to us under our agreements and under certain circumstances, such as a breach of confidentiality by us, can terminate the agreements. In addition, ICM may assign the agreements without our consent in connection with a change of control. Since adapting our technology to commercial-scale production of isobutanol and then Retrofitting ethanol plants to use our technology is a major part of our commercialization strategy, losing our alliance with ICM could slow our technological and commercial development. It could also force us to find a new contractor with less experience than ICM in designing and building ethanol plants, or to invest the time and resources necessary to Retrofit plants on our own. Such Retrofits may be less successful than if performed by ICM engineers, and Retrofitted plants might operate less efficiently than expected. This could substantially hinder our ability to expand our production capacity, and could severely impact our performance. If ICM fails to fulfill its obligations to us under our agreements, our ability to realize continued development and commercial benefits from our alliance could be affected. Accordingly, if we lose our alliance with ICM, if ICM terminates or breaches its agreements with us, or if ICM assigns its agreements with us to a competitor of ours or to a third party that is not willing to work with us on the same terms or commit the same resources, our business and prospects could be harmed.

In November 2015, we entered into the JDA with Praj, which establishes a strategic relationship to: (i) jointly develop our technology for use in certain ethanol plants that utilize the Feedstock; (ii) jointly develop an engineering package for greenfield Biobutanol plants and retrofitting ethanol plants to produce renewable Biobutanol from the Feedstock; and (iii) license our technology to build greenfield Biobutanol plants and retrofit certain ethanol plants to produce Biobutanol. We and Praj will jointly develop and optimize the parameters to produce Biobutanol from the Feedstock. After the Development Work is completed, we will negotiate commercial license agreements with Praj and third party licensees. Praj has the exclusive right to supply equipment and process engineering services for (i) certain greenfield Biobutanol plants covered by the JDA and (ii) the addition of Biobutanol capacity for certain ethanol plants that utilize the Feedstock and Praj technology. Praj agreed to meet certain milestones to maintain its exclusive rights. We will negotiate and license our technology for producing Biobutanol directly with the ethanol plants covered by the JDA and will also have the right to supply biocatalysts, nutrient packages, and support services to such plants. Praj will be the engineering procurement and construction supplier for the ethanol plants covered by the JDA and we will be the exclusive seller of all Biobutanol produced by such plants.

Praj is one of the leading suppliers of engineering, procurement and construction services to the ethanol industry globally, having provided such services to approximately 350 ethanol plants across 65 countries. As a result, we believe that our alliance with Praj will allow us to more quickly achieve commercial-scale production of isobutanol derived from the Feedstock outside of the United States. However, Praj may fail to fulfill its obligations to us under our agreements such as failing to meet milestones associated with our joint development agreement. If Praj fails to fulfill its obligations to us under our agreements, our ability to realize continued development and commercial benefits from our alliance could be affected and our business and prospects could be harmed.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our technologies.

We may, subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint, seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and licensing arrangements. To the extent that we raise additional capital through the sale or issuance of equity, warrants or convertible debt securities, your

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ownership interest will be diluted, and the terms of such securities may include liquidation or other preferences that adversely affect your rights as a stockholder. If we raise capital through debt financing, it may involve agreements that include covenants further limiting or restricting our ability to take certain actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional funds through strategic partnerships or licensing agreements with third parties, we may have to relinquish valuable rights to our technologies, or grant licenses on terms that are not favorable to us. If we are unable to raise additional funds when needed, we may be required to delay, limit, reduce or terminate our development and commercialization efforts.

Our quarterly operating results may fluctuate in the future. As a result, we may fail to meet or exceed the expectations of investment research analysts or investors, which could cause our stock price to decline.

Our financial condition and operating results have varied significantly in the past and may continue to fluctuate from quarter to quarter and year to year in the future due to a variety of factors, many of which are beyond our control. Factors relating to our business that may contribute to these fluctuations are described elsewhere in this prospectus supplement, our Annual Report on Form 10-K for the year ended December 31, 2014, as amended, and other reports that we have filed with the SEC. Accordingly, the results of any prior quarterly or annual periods should not be relied upon as indications of our future operating performance.

A sustained low oil price environment may negatively impact the price we receive for the sale of our isobutanol, ethanol and hydrocarbon products.

Many of our end-products such as isobutanol, ethanol and hydrocarbon products have some level of price correlation with crude oil. If crude oil prices were to remain at low levels over a sustained period of time, this may have an impact on the pricing that we are able to achieve in the marketplace for many of those end-products. This may cause us to operate at a lower, or negative, operating margins and, as a result, our management may decide to reduce or suspend production of ethanol and/or isobutanol at the Agri-Energy Facility. Unfavorable operating margins may also impact our ability to access and Retrofit, either independently or with potential development partners or licensees, existing ethanol facilities for the production of isobutanol for commercial distribution and sale.

Reductions or changes to existing regulations and policies may present technical, regulatory and economic barriers, all of which may significantly reduce demand for biofuels or our ability to supply isobutanol.

The market for biofuels is heavily influenced by foreign, federal, state and local government regulations and policies. For example, in 2007, the U.S. Congress passed an alternative fuels mandate that required nearly 14 billion gallons of liquid transportation fuels sold in 2011 to come from alternative sources, including biofuels, a mandate that grows to 36 billion gallons by 2022. Of this amount, a minimum of 21 billion gallons must be advanced biofuels as defined by the U.S. Congress. In the U.S., and in a number of other countries, these regulations and policies have been modified in the past and may be modified again in the future. Any reduction in mandated requirements for fuel alternatives and additives to gasoline may cause the demand for biofuels to decline and deter investment in the research and development of biofuels. For example, the Energy and Commerce Committee of the U.S. House of Representatives has undertaken an assessment of the Renewable Fuel Standard program and has published five white papers on the subject during the current congressional period. The EPA has also said that it plans to assess the E10 blendwall and current infrastructure and market-based limitations to the consumption of ethanol in gasoline-ethanol blends above E10. In particular, the EPA is proposing to cut the volume requirements for advanced biofuels by more than 40% when compared to the requirements currently written into the statute. This proposal has created significant concerns throughout the biofuels industry, many of which were voiced by the biofuels industry during the public comment period. This type of legislative activity can create concern in the marketplace about the long-term sustainability of governmental policies. The absence of tax credits, subsidies and other incentives in the U.S. and foreign markets for biofuels, or any inability of our customers to access such credits, subsidies and incentives, may adversely

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affect demand for our products, which would adversely affect our business. The resulting market uncertainty regarding current and future standards and policies may also affect our ability to develop new renewable products or to license our technologies to third parties and to sell products to our end customers.

Concerns associated with biofuels, including land usage, national security interests and food crop usage, continue to receive legislative, industry and public attention. This attention could result in future legislation, regulation and/or administrative action that could adversely affect our business. Any inability to address these requirements and any regulatory or policy changes could have a material adverse effect on our business, financial condition and results of operations.

Additionally, like the ethanol facilities that we Retrofit, our isobutanol plants will emit greenhouse gases. Any changes in state or federal emissions regulations, including the passage of cap-and-trade legislation or a carbon tax, could limit our production of isobutanol and iDGs and increase our operating costs, which could have a material adverse effect on our business, financial condition and results of operations.

If we engage in additional acquisitions, we will incur a variety of costs and may potentially face numerous risks that could adversely affect our business and operations.

If appropriate opportunities become available, we may acquire businesses, assets, technologies or products to enhance our business in the future. In connection with any future acquisitions, we could, subject to certain limitations in the agreements governing our indebtedness, including our secured indebtedness with Whitebox and/or TriplePoint:

issue additional equity securities which would dilute our current stockholders;

incur substantial debt to fund the acquisitions; or

assume significant liabilities.

Acquisitions involve numerous risks, including problems integrating the purchased operations, technologies or products, unanticipated costs and other liabilities, diversion of management's attention from our core business, adverse effects on existing business relationships with current and/or prospective partners, customers and/or suppliers, risks associated with entering markets in which we have no or limited prior experience and potential loss of key employees. Other than our acquisition of Agri-Energy, we have not engaged in acquisitions in the past, and do not have experience in managing the integration process. Therefore, we may not be able to successfully integrate any businesses, assets, products, technologies or personnel that we might acquire in the future without a significant expenditure of operating, financial and management resources, if at all. The integration process could divert management time from focusing on operating our business, result in a decline in employee morale and cause retention issues to arise from changes in compensation, reporting relationships, future prospects or the direction of the business. In addition, we may acquire companies that have insufficient internal financial controls, which could impair our ability to integrate the acquired company and adversely impact our financial reporting. If we fail in our integration efforts with respect to acquisitions and are unable to efficiently operate as a combined organization, our business, financial condition and results of operations may be materially adversely affected.

If we engage in additional joint ventures, we will incur a variety of costs and may potentially face numerous risks that could adversely affect our business and operations.

If appropriate opportunities become available, we may enter into joint ventures with the owners of existing ethanol production facilities in order to acquire access to additional isobutanol production capacity. We currently anticipate that in each such joint venture, the ethanol producer would contribute access to its existing ethanol production facility and we would be responsible for Retrofitting such facility to produce isobutanol. Upon completion of the Retrofit, and in some cases the attainment of certain performance targets, both parties to the

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joint venture would receive a portion of the profits from the sale of isobutanol, consistent with our business model. In connection with these joint ventures, we could incur substantial debt to fund the Retrofit of the accessed facilities and we could assume significant liabilities.

Realizing the anticipated benefits of joint ventures, including projected increases to production capacity and additional revenue opportunities, involves a number of potential challenges. The failure to meet these challenges could seriously harm our financial condition and results of operations. Joint ventures are complex and time-consuming and we may encounter unexpected difficulties or incur unexpected costs related to such arrangements, including:

difficulties negotiating joint venture agreements with favorable terms and establishing relevant performance metrics;

difficulties completing the Retrofits of the accessed facilities using our integrated fermentation technology;

the inability to meet applicable performance targets related to the production of isobutanol;

difficulties obtaining the permits and approvals required to produce and sell our products in different geographic areas;

complexities associated with managing the geographic separation of accessed facilities;

diversion of management attention from ongoing business concerns to matters related to the joint ventures;

difficulties maintaining effective relationships with personnel from different corporate cultures; and

the inability to generate sufficient revenue to offset Retrofit costs.

Additionally, our joint venture partners may have liabilities or adverse operating issues that we fail to discover through due diligence prior to entering into the joint ventures. In particular, to the extent that our joint venture partners failed to comply with or otherwise violated applicable laws or regulations, or failed to fulfill their contractual obligations, we may suffer financial harm and/or reputational harm for these violations or otherwise be adversely affected.

Our joint venture partners may have significant amounts of existing debt and may not be able to service their existing debt obligations, which could cause the failure of a specific project and the loss by us of any investment we have made to Retrofit the facilities owned by the joint venture partner. In addition, if we are unable to meet specified performance targets related to the production of isobutanol at a facility owned by one of our joint venture partners, we may never become eligible to receive a portion of the profits of the joint venture and may be unable to recover the costs of Retrofitting the facility.

Additionally, we plan to be the sole marketer for all isobutanol and co-products produced using our proprietary technology and sold in markets other than on-road gasoline blendstocks including, without limitation, all isobutanol

that is produced by any facilities that we access via joint venture. Marketing agreements can be very complex and the obligations that we assume as the sole marketer of isobutanol may be time consuming. We have no experience marketing isobutanol on a commercial scale and we may fail to successfully negotiate marketing agreements in a timely manner or on favorable terms. If we fail to successfully market the isobutanol produced using our proprietary technology to refiners and chemical producers, our business, financial condition and results of operations will be materially adversely affected.

If we lose key personnel, including key management personnel, or are unable to attract and retain additional personnel, it could delay our product development programs and harm our research and development efforts, we may be unable to pursue partnerships or develop our own products and it may trigger an event of default under the agreements governing our indebtedness, including our secured indebtedness with TriplePoint.

Our business is complex and we intend to target a variety of markets. Therefore, it is critical that our management team and employee workforce are knowledgeable in the areas in which we operate. The loss of any

key members of our management, including our named executive officers, or the failure to attract or retain other key employees who possess the requisite expertise for the conduct of our business, could prevent us from developing and commercializing our products for our target markets and entering into partnerships or licensing arrangements to execute our business strategy. In addition, the loss of any key scientific staff, or the failure to attract or retain other key scientific employees, could prevent us from developing and commercializing our products for our target markets and entering into partnerships or licensing arrangements to execute our business strategy. We may not be able to attract or retain qualified employees in the future due to the intense competition for qualified personnel among biotechnology and other technology-based businesses, particularly in the advanced biofuels area, or due to the limited availability of personnel with the qualifications or experience necessary for our renewable chemicals and advanced biofuels business. If we are not able to attract and retain the necessary personnel to accomplish our business objectives, we may experience staffing constraints that will adversely affect our ability to meet the demands of our partners and customers in a timely fashion or to support our internal research and development programs. In particular, our product and process development programs are dependent on our ability to attract and retain highly skilled scientists. Competition for experienced scientists and other technical personnel from numerous companies and academic and other research institutions may limit our ability to do so on acceptable terms. Additionally, certain changes in our management could trigger an event of default under the agreements governing our indebtedness, including our secured indebtedness with TriplePoint, and we could be forced to pay the outstanding balance of the loan(s) in full. All of our employees are at-will employees, meaning that either the employee or we may terminate their employment at any time.

Our planned activities will require additional expertise in specific industries and areas applicable to the products and processes developed through our technology platform or acquired through strategic or other transactions, especially in the end markets that we seek to penetrate. These activities will require the addition of new personnel, and the development of additional expertise by existing personnel. The inability to attract personnel with appropriate skills or to develop the necessary expertise could impair our ability to grow our business.

Our ability to compete may be adversely affected if we do not adequately protect our proprietary technologies or if we lose some of our intellectual property rights through costly litigation or administrative proceedings.

Our success will depend in part on our ability to obtain patents and maintain adequate protection of our intellectual property covering our technologies and products and potential products in the U.S. and other countries. We have adopted a strategy of seeking patent protection in the U.S. and in certain foreign countries with respect to certain of the technologies used in or relating to our products and processes. As such, as of September 30, 2015, we exclusively licensed rights to approximately 106 issued patents and filed patent applications in the U.S. and in various foreign jurisdictions, and we owned rights to approximately 418 issued patents and filed patent applications in the U.S. and in various foreign jurisdictions. When and if issued, patents would expire at the end of their term and any patent would only provide us commercial advantage for a limited period of time, if at all. Our patent applications are directed to our enabling technologies and to our methods and products which support our business in the advanced biofuels and renewable chemicals markets. We intend to continue to apply for patents relating to our technologies, methods and products as we deem appropriate.

Only approximately 37 of the patent applications that we have filed in the U.S. or in any foreign jurisdictions, and only certain of the patent applications filed by third parties in which we own rights, have been issued. A filed patent application does not guarantee a patent will issue and a patent issuing does not guarantee its validity, nor does it give us the right to practice the patented technology or commercialize the patented product. Third parties may have or obtain rights to blocking patents that could be used to prevent us from commercializing our products or practicing our technology. The scope and validity of patents and success in prosecuting patent applications involve complex legal and factual questions and, therefore, issuance, coverage and validity cannot be predicted with any certainty. Patents issuing from our filed applications may be challenged, invalidated or circumvented. Moreover, third parties could practice our inventions in secret and in territories where we do not have patent protection. Such third parties may then

try to sell or import products made using our inventions in and into the U.S. or other territories and we may be unable to prove that such products were made using our

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inventions. Additional uncertainty may result from implementation of the Leahy-Smith America Invents Act, enacted in September 2011, as well as other potential patent reform legislation passed by the U.S. Congress and from legal precedent handed down by the Federal Circuit Court and the U.S. Supreme Court, as they determine legal issues concerning the scope, validity and construction of patent claims. Because patent applications in the U.S. and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publication of discoveries in the scientific literature often lags behind the actual discoveries, there is additional uncertainty as to the validity of any patents that may issue and the potential for blocking patents coming into force at some future date. Accordingly, we cannot ensure that any of our currently filed or future patent applications will result in issued patents, or even if issued, predict the scope of the claims that may issue in our and other companies' patents. Several of our issued patents are being challenged in regulatory proceedings before the USPTO. These proceedings may result in the claims being amended or canceled. If the claims are amended or canceled, the scope of our patents claims may be narrowed, which may reduce the scope of protection afforded by our patent portfolio. Given that the degree of future protection for our proprietary rights is uncertain, we cannot ensure that (i) we were the first to make the inventions covered by each of our filed applications, (ii) we were the first to file patent applications for these inventions, (iii) the proprietary technologies we develop will be patentable, (iv) any patents issued will be broad enough in scope to provide commercial advantage and prevent circumvention, and (v) competitors and other parties do not have or will not obtain patent protection that will block our development and commercialization activities.

These concerns apply equally to patents we have licensed, which may likewise be challenged, invalidated or circumvented, and the licensed technologies may be obstructed from commercialization by competitors' blocking patents. In addition, we generally do not control the patent prosecution and maintenance of subject matter that we license from others. Generally, the licensors are primarily or wholly responsible for the patent prosecution and maintenance activities pertaining to the patent applications and patents we license, while we may only be afforded opportunities to comment on such activities. Accordingly, we are unable to exercise the same degree of control over licensed intellectual property as we exercise over our own intellectual property and we face the risk that our licensors will not prosecute or maintain it as effectively as we would like.

In addition, unauthorized parties may attempt to copy or otherwise obtain and use our products or technology. Monitoring unauthorized use of our intellectual property is difficult, particularly where, as here, the end products reaching the market generally do not reveal the processes used in their manufacture, and particularly in certain foreign countries where the local laws may not protect our proprietary rights as fully as in the U.S., so we cannot be certain that the steps we have taken in obtaining intellectual property and other proprietary rights will prevent unauthorized use of our technology. If competitors are able to use our technology without our authorization, our ability to compete effectively could be adversely affected. Moreover, competitors and other parties such as universities may independently develop and obtain patents for technologies that are similar to or superior to our technologies. If that happens, the potential competitive advantages provided by our intellectual property may be adversely affected. We may then need to license these competing technologies, and we may not be able to obtain licenses on reasonable terms, if at all, which could cause material harm to our business. Accordingly, litigation may be necessary for us to assert claims of infringement, enforce patents we own or license, protect trade secrets or determine the enforceability, scope and validity of the intellectual property rights of others.

Our commercial success also depends in part on not infringing patents and proprietary rights of third parties, and not breaching any licenses or other agreements that we have entered into with regard to our technologies, products and business. We cannot be certain that patents have not or will not issue to third parties that could block our ability to obtain patents or to operate our business as we would like, or at all. There may be patents in some countries that, if valid, may block our ability to commercialize products in those countries if we are unsuccessful in circumventing or acquiring rights to these patents. There may also be claims in patent applications filed in some countries that, if granted and valid, may also block our ability to commercialize products or processes in these countries if we are unable to circumvent or license them.

As is commonplace in the biotechnology industries, some of our directors, employees and consultants are or have been employed at, or associated with, companies and universities that compete with us or have or will develop

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similar technologies and related intellectual property. While employed at these companies, these employees, directors and consultants may have been exposed to or involved in research and technology similar to the areas of research and technology in which we are engaged. Though we have not received such a complaint, we may be subject to allegations that we, our directors, employees or consultants have inadvertently or otherwise used, misappropriated or disclosed alleged trade secrets or confidential or proprietary information of those companies. Litigation may be necessary to defend against such allegations and the outcome of any such litigation would be uncertain.

Under some of our research agreements, our partners share joint rights in certain intellectual property we develop. For example, under our development agreement with ICM, we have exclusive rights to all intellectual property developed within the defined scope of the project, but all other intellectual property developed pursuant to the agreement is to be jointly owned. Such provisions may limit our ability to gain commercial benefit from some of the intellectual property we develop, and may lead to costly or time-consuming disputes with parties with whom we have commercial relationships over rights to certain innovations.

If any other party has filed patent applications or obtained patents that claim inventions also claimed by us, we may have to participate in interference, derivation or other proceedings declared by the USPTO to determine priority of invention and, thus, the right to the patents for these inventions in the U.S. These proceedings could result in substantial cost to us even if the outcome is favorable. Even if successful, such a proceeding may result in the loss of certain claims. Even successful outcomes of such proceedings could result in significant legal fees and other expenses, diversion of management time and efforts and disruption in our business. Uncertainties resulting from initiation and continuation of any patent or related litigation could harm our ability to compete.

If our biocatalysts, or the genes that code for our biocatalysts, are stolen, misappropriated or reverse engineered, others could use these biocatalysts or genes to produce competing products.

Third parties, including our contract manufacturers, customers and those involved in shipping our biocatalysts, may have custody or control of our biocatalysts. If our biocatalysts, or the genes that code for our biocatalysts, were stolen, misappropriated or reverse engineered, they could be used by other parties who may be able to reproduce these biocatalysts for their own commercial gain. If this were to occur, it would be difficult for us to discover or challenge this type of use, especially in countries with limited intellectual property protection.

We may not be able to enforce our intellectual property rights throughout the world.

The laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the U.S. Many companies have encountered significant problems in protecting and enforcing intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to bioindustrial technologies. This could make it difficult for us to stop the infringement of our patents or misappropriation of our other intellectual property rights. Proceedings to enforce our patents and other proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Accordingly, our efforts to enforce our intellectual property rights in such countries may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop.

Confidentiality agreements with employees and others may not adequately prevent disclosures of trade secrets and other proprietary information.

We rely in part on trade secret protection to protect our confidential and proprietary information and processes. However, trade secrets are difficult to protect. We have taken measures to protect our trade secrets and proprietary information, but these measures may not be effective. We require new employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting arrangement with us. These

agreements generally require that all confidential information developed by the individual or made

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known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. These agreements also generally provide that know-how and inventions conceived by the individual in the course of rendering services to us shall be our exclusive property. Nevertheless, these agreements may not be enforceable, our proprietary information may be disclosed, third parties could reverse engineer our biocatalysts and others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position. In addition, an unauthorized breach in our information technology systems may expose our trade secrets and other proprietary information to unauthorized parties.

We have received funding from U.S. government agencies, which could negatively affect our intellectual property rights.

Some of our research has been funded by grants from U.S. government agencies. When new technologies are developed with U.S. government funding, the government obtains certain rights in any resulting patents and technical data, generally including, at a minimum, a nonexclusive license authorizing the government to use the invention or technical data for noncommercial purposes. U.S. government funding must be disclosed in any resulting patent applications, and our rights in such inventions will normally be subject to government license rights, periodic progress reporting, foreign manufacturing restrictions and march-in rights. March-in rights refer to the right of the U.S. government, under certain limited circumstances, to require us to grant a license to technology developed under a government grant to a responsible applicant or, if we refuse, to grant such a license itself. March-in rights can be triggered if the government determines that we have failed to work sufficiently towards achieving practical application of a technology or if action is necessary to alleviate health or safety needs, to meet requirements of federal regulations or to give preference to U.S. industry. If we breach the terms of our grants, the government may gain rights to the intellectual property developed in our related research. The government's rights in our intellectual property may lessen its commercial value, which could adversely affect our performance.

Our government grants are subject to uncertainty, which could harm our business and results of operations.

We have received various government grants, including a cooperative agreement, to complement and enhance our own resources. We may seek to obtain government grants and subsidies in the future to offset all or a portion of the costs of Retrofitting existing ethanol manufacturing facilities and the costs of our research and development activities. We cannot be certain that we will be able to secure any such government grants or subsidies. Any of our existing grants or new grants that we may obtain may be terminated, modified or recovered by the granting governmental body under certain conditions.

We may also be subject to audits by government agencies as part of routine audits of our activities funded by our government grants. As part of an audit, these agencies may review our performance, cost structures and compliance with applicable laws, regulations and standards. Funds available under grants must be applied by us toward the research and development programs specified by the granting agencies, rather than for all of our programs generally. If any of our costs are found to be allocated improperly, the costs may not be reimbursed and any costs already reimbursed may have to be refunded. Accordingly, an audit could result in an adjustment to our revenues and results of operations.

We may face substantial competition, which could adversely affect our performance and growth.

We may face substantial competition in the markets for isobutanol, ethanol, polyester, rubber, plastics, fibers, other polymers and hydrocarbon fuels. Our competitors include companies in the incumbent petroleum-based industry as well as those in the nascent biorenewable industry. The incumbent petroleum-based industry benefits from a large established infrastructure, production capability and business relationships. The incumbents' greater

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resources and financial strength provide significant competitive advantages that we may not be able to overcome in a timely manner. Academic and government institutions may also develop technologies which will compete with us in the chemicals, solvents and blendstock markets.

The biorenewable industry is characterized by rapid technological change. Our future success will depend on our ability to maintain a competitive position with respect to technological advances. Technological development by others may impact the competitiveness of our products in the marketplace. Competitors and potential competitors who have greater resources and experience than we do may develop products and technologies that make ours obsolete or may use their greater resources to gain market share at our expense.

In the production of isobutanol, we face competition from Butamax. Additionally, a number of companies including Cathay Industrial Biotech, Ltd., Green Biologics Ltd., METabolic Explorer, S.A. and Eastman Chemical Company (which acquired TetraVitae Bioscience, Inc. in November 2011) are developing n-butanol production capability from a variety of renewable feedstocks.

In the ethanol market, we operate in a highly competitive industry in the United States. According to the Renewable Fuels Association, there are over 200 ethanol facilities in the United States with an installed nameplate capacity of almost 15 billion gallons. Some of the key competitors in the United States include Archer-Daniels-Midland Company, POET, LLC, Valero Energy Corporation and Green Plains Renewable Energy, Inc. We also face competition from foreign producers of ethanol. Brazil is believed to be the world's second largest ethanol producing country. Many producers have much larger production capacities and operate at a lower cost of production than we do. As a result, these companies may be able to compete more effectively in narrower commodity margin environments.

In the polyester, rubber, plastics, fibers and other polymers markets, we face competition from incumbent petroleum-derived products, other renewable isobutanol producers and renewable n-butanol producers. Our competitive position versus the incumbent petroleum-derived products and other renewable butanol producers may not be favorable. Petroleum-derived products have dominated the market for many years and there is substantial existing infrastructure for production from petroleum sources, which may impede our ability to establish a position in these markets. Other isobutanol and n-butanol companies may develop technologies that prove more effective than our isobutanol production technology, or such companies may be more adept at marketing their production. Additionally, one small company in France, Global Bioenergies, S.A., is pursuing the production of isobutylene from renewable carbohydrates directly. Since conversion of isobutanol to butenes such as isobutylene is a key step in producing many polyester, rubber, plastics, fibers and other polymers from our isobutanol, this direct production of renewable isobutylene, if successful, could limit our opportunities in these markets.

In the gasoline blendstock market, we will compete with our isobutanol against renewable ethanol producers (including those working to produce ethanol from cellulosic feedstocks), producers of alkylate from petroleum and producers of other blendstocks, all of whom may reduce our ability to obtain market share or maintain our price levels. For example, Coskata, Inc. is developing a hybrid thermochemical-biocatalytic process to produce ethanol from a variety of feedstocks. If any of these competitors succeed in producing blendstocks more efficiently, in higher volumes or offering superior performance than our isobutanol, our financial performance may suffer. Furthermore, if our competitors have more success marketing their products or reach development or supply agreements with major customers, our competitive position may also be harmed.

In the production of other biofuels, key competitors include Shell Oil Company, BP, DuPont-Danisco Cellulosic Ethanol LLC, Abengoa Bioenergy, S.A., POET, LLC, ICM, Mascoma Corporation, Inbicon A/S, INEOS New Planet BioEnergy LLC, Coskata, Inc., Archer Daniels Midland Company, BlueFire Ethanol, Inc., KL Energy Corporation, ZeaChem Inc., Iogen Corporation, Qteros, Inc., AE Biofuels, Inc. and many smaller startup companies. If these companies are successful in establishing low cost cellulosic ethanol or other fuel production, it could negatively impact the market for our isobutanol as a gasoline blendstock.

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In the markets for the hydrocarbon fuels that we plan to produce from our isobutanol, we will face competition from the incumbent petroleum-based fuels industry. The incumbent petroleum-based fuels industry makes the vast majority of the world's gasoline, jet and diesel fuels and blendstocks. It is a mature industry with a substantial base of infrastructure for the production and distribution of petroleum-derived products. The size, established infrastructure and significant resources of many companies in this industry may put us at a substantial competitive disadvantage and delay or prevent the establishment and growth of our business in the market for hydrocarbon fuels.

Biofuels companies may also provide substantial competition in the hydrocarbon fuels market. With respect to production of renewable gasoline, biofuels competitors are numerous and include both large established companies and numerous startups. For example, Virent Energy Systems, Inc. has developed a process for making gasoline and gasoline blendstocks and Kior, Inc. has developed a technology platform to convert biomass into renewable crude oil. Many other competitors may do so as well. In the jet fuel market, we will face competition from companies such as Synthetic Genomics, Inc., Solazyme, Inc., Sapphire Energy, Inc. and Exxon-Mobil Corporation that are pursuing production of jet fuel from algae-based technology. Renewable Energy Group, Inc. and others are also targeting production of jet fuels from renewable biomass. We may also face competition from companies working to produce jet fuel from hydrogenated fatty acid methyl esters. In the diesel fuels market, competitors such as Amyris Biotechnologies, Inc. and Renewable Energy Group, Inc. have developed technologies for production of alternative hydrocarbon diesel fuel.

In the polyester, rubber, plastics, fibers and other polymers markets and the hydrocarbon fuels market, we expect to face vigorous competition from existing technologies. The companies we may compete with may have significantly greater access to resources, far more industry experience and/or more established sales and marketing networks. Additionally, since we do not plan to produce most of these products directly, we will depend on the willingness of potential customers to purchase and convert our isobutanol into their products. These potential customers generally have well-developed manufacturing processes and arrangements with suppliers of the chemical components of their products and may have a resistance to changing these processes and components. These potential customers frequently impose lengthy and complex product qualification procedures on their suppliers, influenced by consumer preference, manufacturing considerations such as process changes and capital and other costs associated with transitioning to alternative components, supplier operating history, regulatory issues, product liability and other factors, many of which are unknown to, or not well understood by, us. Satisfying these processes may take many months or years. If we are unable to convince these potential customers that our isobutanol is comparable or superior to the alternatives that they currently use, we will not be successful in entering these markets and our business will be adversely affected.

We also face challenges in marketing our isobutanol or products derived from our isobutanol. Though we intend to enhance our competitiveness through partnerships and joint development agreements, some competitors may gain an advantage by securing more valuable partnerships for developing their hydrocarbon products than we are able to obtain. Such partners could include major petrochemical, refiner or end-user companies. Additionally, petrochemical companies may develop alternative pathways for hydrocarbon production that may be less expensive, and may utilize more readily available infrastructure than that used to convert our isobutanol into hydrocarbon products.

We plan to enter into partnerships through which we will sell significant volumes of our isobutanol to partners who will convert it into useful hydrocarbons or use it as a fuel or as a gasoline blendstock. However, if any of these partners instead negotiate supply agreements with other buyers for the isobutanol they purchase from us, or sell it into the open market, they may become competitors of ours in the field of isobutanol sales. This could significantly reduce our profitability and hinder our ability to negotiate future supply agreements for our isobutanol, which could have an adverse effect on our performance.

Our ability to compete successfully will depend on our ability to develop proprietary products that reach the market in a timely manner and are technologically superior to and/or are less expensive than other products on

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the market. Many of our competitors have substantially greater production, financial, research and development, personnel and marketing resources than we do. In addition, certain of our competitors may also benefit from local government subsidies and other incentives that are not available to us. As a result, our competitors may be able to develop competing and/or superior technologies and processes, and compete more aggressively and sustain that competition over a longer period of time than we could. Our technologies and products may be rendered obsolete or uneconomical by technological advances or entirely different approaches developed by one or more of our competitors. As more companies develop new intellectual property in our markets, the possibility of a competitor acquiring patent or other rights that may limit our products or potential products increases, which could lead to litigation. Furthermore, to secure purchase agreements from certain customers, we may be required to enter into exclusive supply contracts, which could limit our ability to further expand our sales to new customers. Likewise, major potential customers may be locked into long-term, exclusive agreements with our competitors, which could inhibit our ability to compete for their business.

In addition, various governments have recently announced a number of spending programs focused on the development of clean technologies, including alternatives to petroleum-based fuels and the reduction of carbon emissions. Such spending programs could lead to increased funding for our competitors or a rapid increase in the number of competitors within those markets.

Our limited resources relative to many of our 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 market share, adversely affect our results of operations and financial position and prevent us from obtaining or maintaining profitability.

Business interruptions could delay us in the process of developing our products and could disrupt our sales.

We are vulnerable to natural disasters and other events that could disrupt our operations, such as riots, civil disturbances, war, terrorist acts, floods, infections in our laboratory or production facilities or those of our contract manufacturers and other events beyond our control. We do not have a detailed disaster recovery plan. In addition, we may not carry sufficient business interruption insurance to compensate us for losses that may occur. Any losses or damages we incur could have a material adverse effect on our cash flows and success as an overall business. Furthermore, ICM may terminate our commercialization agreement if a force majeure event interrupts our operations for a specified period of time.

We may engage in hedging transactions, which could harm our business.

We have historically engaged in hedging transactions to offset some of the effects of volatility in commodity prices. We have generally followed a policy of using exchange-traded futures contracts to reduce our net position in agricultural commodity inventories and forward purchase contracts to manage price risk. Hedging activities may cause us to suffer losses, such as if we purchase a position in a declining market or sell a position in a rising market. Furthermore, hedging exposes us to the risk that we may have under- or over-estimated our need for a specific commodity or that the other party to a hedging contract may default on its obligation. If there are significant swings in commodity prices, or if we purchase more corn for future delivery than we can process, we may have to pay to terminate a futures contract, resell unneeded corn inventory at a loss, or produce our products at a loss, all of which would have a material adverse effect on our financial performance. We may vary the hedging strategies we undertake, which could leave us more vulnerable to increases in commodity prices or decreases in the prices of isobutanol, distiller's grains, iDGs or ethanol. Losses from hedging activities and changes in hedging strategy could have a material adverse effect on our operations.

Ethical, legal and social concerns about genetically engineered products and processes, and similar concerns about feedstocks grown on land that could be used for food production, could limit or prevent the use of our products,

processes and technologies and limit our revenues.

Some of our processes involve the use of genetically engineered organisms or genetic engineering technologies. Additionally, our feedstocks may be grown on land that could be used for food production, which subjects our

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feedstock sources to food versus fuel concerns. If we are not able to overcome the ethical, legal and social concerns relating to genetic engineering or food versus fuel, our products and processes may not be accepted. Any of the risks discussed below could result in increased expenses, delays or other impediments to our programs or the public acceptance and commercialization of products and processes dependent on our technologies or inventions.

Our ability to develop and commercialize one or more of our technologies, products, or processes could be limited by the following factors:

public attitudes about the safety and environmental hazards of, and ethical concerns over, genetic research and genetically engineered products and processes, which could influence public acceptance of our technologies, products and processes;

public attitudes regarding and potential changes to laws governing ownership of genetic material, which could harm our intellectual property rights with respect to our genetic material and discourage others from supporting, developing or commercializing our products, processes and technologies;

public attitudes and ethical concerns surrounding production of feedstocks on land which could be used to grow food, which could influence public acceptance of our technologies, products and processes;

governmental reaction to negative publicity concerning genetically engineered organisms, which could result in greater government regulation of genetic research and derivative products; and

governmental reaction to negative publicity concerning feedstocks produced on land which could be used to grow food, which could result in greater government regulation of feedstock sources.

The subjects of genetically engineered organisms and food versus fuel have received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on imports of genetically engineered products or feedstocks grown on land suitable for food production.

The biocatalysts that we develop have significantly enhanced characteristics compared to those found in naturally occurring enzymes or microbes. While we produce our biocatalysts only for use in a controlled industrial environment, the release of such biocatalysts into uncontrolled environments could have unintended consequences. Any adverse effect resulting from such a release could have a material adverse effect on our business and financial condition, and we may be exposed to liability for any resulting harm.

We use hazardous materials in our business and we must comply with environmental laws and regulations. Any claims relating to improper handling, storage or disposal of these materials or noncompliance with applicable laws and regulations could be time consuming and costly and could adversely affect our business and results of operations.

Our research and development processes involve the use of hazardous materials, including chemical, radioactive and biological materials. Our operations also produce hazardous waste. We cannot eliminate entirely the risk of accidental contamination or discharge and any resultant injury from these materials. Federal, state and local laws and regulations govern the use, manufacture, storage, handling and disposal of, and human exposure to, these materials. We may be sued for any injury or contamination that results from our use or the use by third parties of these materials, and our liability may exceed our total assets. Although we believe that our activities conform in all material respects with

environmental laws, there can be no assurance that violations of environmental, health and safety laws will not occur in the future as a result of human error, accident, equipment failure or other causes. Compliance with applicable environmental laws and regulations may be expensive, and the failure to comply with past, present, or future laws could result in the imposition of fines, third-party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production or a cessation of operations, and our liability may exceed our total assets. Liability under environmental laws can be joint and several and without regard to comparative fault. Environmental laws could become more stringent over time imposing greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business.

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As isobutanol has not previously been used as a commercial fuel in significant amounts, its use subjects us to product liability risks, and we may have difficulties obtaining product liability insurance.

Isobutanol has not previously been used as a commercial fuel and research regarding its impact on engines and distribution infrastructure is ongoing. Though we intend to test our isobutanol further before its commercialization, there is a risk that it may damage engines or otherwise fail to perform as expected. If isobutanol degrades the performance or reduces the lifecycle of engines, or causes them to fail to meet emissions standards, market acceptance could be slowed or stopped, and we could be subject to product liability claims. Furthermore, due to isobutanol's lack of commercial history as a fuel, we are uncertain as to whether we will be able to acquire product liability insurance on reasonable terms, or at all. A significant product liability lawsuit could substantially impair our production efforts and could have a material adverse effect on our business, reputation, financial condition and results of operations.

During the ordinary course of business, we may become subject to lawsuits or indemnity claims, which could materially and adversely affect our business and results of operations.

From time to time, we may in the ordinary course of business be named as a defendant in lawsuits, claims and other legal proceedings. These actions may seek, among other things, compensation for alleged personal injury, worker's compensation, employment discrimination, breach of contract, property damages, civil penalties and other losses of injunctive or declaratory relief. In the event that such actions or indemnities are ultimately resolved unfavorably at amounts exceeding our accrued liability, or at material amounts, the outcome could materially and adversely affect our reputation, business and results of operations. In addition, payments of significant amounts, even if reserved, could adversely affect our liquidity position.

We may not be able to use some or all of our net operating loss carry-forwards to offset future income.

We have net operating loss carryforwards due to prior period losses, which if not utilized will begin to expire at various times over the next 20 years. If we are unable to generate sufficient taxable income to utilize our net operating loss carryforwards, these carryforwards could expire unused and be unavailable to offset future income tax liabilities.

In addition, under Section 382 of the Internal Revenue Code of 1986, as amended, a corporation that undergoes an ownership change (generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period) is subject to limitation on its ability to utilize its pre-change net operating loss carry-forwards, or net operating losses, to offset future taxable income. We may have experienced one or more ownership changes in prior years, and the issuance of shares in connection with our initial public offering may itself have triggered an ownership change. In addition, future changes in our stock ownership, which may be outside of our control, may trigger an ownership change, as may future equity offerings or acquisitions that have equity as a component of the purchase price. If an ownership change has occurred or does occur in the future, our ability to utilize our net operating losses to offset income if we attain profitability may be limited.

Enacted and proposed changes in securities laws and regulations have increased our costs and may continue to increase our costs in the future.

In recent years, there have been several changes in laws, rules, regulations and standards relating to corporate governance and public disclosure, including the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act), the Sarbanes-Oxley Act of 2002 and various other new regulations promulgated by the SEC and rules promulgated by the national securities exchanges.

The Dodd-Frank Act, enacted in July 2010, expands federal regulation of corporate governance matters and imposes requirements on publicly-held companies, including us, to, among other things, provide stockholders with a periodic advisory vote on executive compensation and also requires compensation committee reforms and enhanced

pay-for-performance disclosures. While some provisions of the Dodd-Frank Act are effective upon enactment, others will be implemented upon the SEC's adoption of related rules and regulations. The scope and timing of the adoption of such rules and regulations is uncertain and accordingly, the cost of compliance with the Dodd-Frank Act is also uncertain.

These and other new or changed laws, rules, regulations and standards are, or will be, subject to varying interpretations in many cases due to their lack of specificity. As a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies, which could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices. Our efforts to comply with evolving laws, regulations and standards are likely to continue to result in increased general and administrative expenses and a diversion of management time and attention from revenue-generating activities to compliance activities. Further, compliance with new and existing laws, rules, regulations and standards may make it more difficult and expensive for us to maintain director and officer liability insurance, and we may be required to accept reduced coverage or incur substantially higher costs to obtain coverage. Members of our board of directors and our principal executive officer and principal financial officer could face an increased risk of personal liability in connection with the performance of their duties. As a result, we may have difficulty attracting and retaining qualified directors and executive officers, which could harm our business. We continually evaluate and monitor regulatory developments and cannot estimate the timing or magnitude of additional costs we may incur as a result of such developments.

If we fail to maintain an effective system of internal controls, we might not be able to report our financial results accurately or prevent fraud; in that case, our stockholders could lose confidence in our financial reporting, which would harm our business and could negatively impact the price of our stock.

Effective internal controls are necessary for us to provide reliable financial reports and prevent fraud. In addition, Section 404 of the Sarbanes-Oxley Act of 2002 (Section 404) requires us to evaluate and report on our internal control over financial reporting and have our principal executive officer and principal financial officer certify as to the accuracy and completeness of our financial reports. The process of maintaining our internal controls and complying with Section 404 is expensive and time consuming, and requires significant attention of management. We cannot be certain that these measures will ensure that we maintain adequate controls over our financial processes and reporting in the future. Even if we conclude that our internal control over financial reporting provides reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles, because of their inherent limitations, our internal controls over financial reporting may not prevent or detect fraud or misstatements. Failure to maintain required controls or implement new or additional controls as circumstances warrant, or difficulties encountered in maintaining or implementing controls, could harm our results of operations or cause us to fail to meet our reporting obligations.

Our management has concluded that the Company's disclosure controls and procedures were not effective as of September 30, 2015 because of deficiencies in our accounting for non-routine transactions, including a material weakness in accounting for the underwritten public offering completed in August 2014 (August Offering). Notwithstanding the material weakness that existed as of September 30, 2015, management has concluded that the consolidated financial statements included in the Annual Report on Form 10-K for the fiscal year ended December 31, 2014, as amended, and subsequent quarterly reports incorporated by reference herein present fairly, in all material respects, the financial position, results of operations and cash flows of the Company in accordance with accounting principles generally accepted in the United States of America (GAAP).

However, if our remedial measures are insufficient to address the material weakness, or if we, or our independent registered public accounting firm, discover an additional material weakness, the disclosure of that fact, even if quickly remedied, could reduce the market's confidence in our financial statements and harm our stock price. In addition, a delay in compliance with Section 404 could subject us to a variety of administrative sanctions, including SEC action, ineligibility for short form resale registration, the suspension or delisting of our common stock from the stock exchange on which it is listed and the inability of registered broker-dealers to make a market in our common stock, which would further reduce our stock price and could harm our business.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein contain forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, levels of activity, performance or achievements to differ materially from those expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements relating to the achievement of advances in our technology platform, the success of our Retrofit production model, the availability of suitable and cost-competitive feedstocks, our ability to gain market acceptance for our products, the expected cost-competitiveness and relative performance attributes of our isobutanol and the products derived from it, additional competition, changes in economic conditions, the future price and volatility of petroleum and products derived from petroleum and statements regarding our intended uses of the proceeds of the securities offered hereby. In some cases, you can identify forward-looking statements by terminology such as may, will, should, expect, plan, anticipate, believe, estimate, predict, potential or continue, the negative or other comparable terminology.

Forward-looking statements reflect our current views about future events, are based on assumptions, and are subject to known and unknown risks and uncertainties. Many important factors could cause actual results, performance or achievements to differ materially from the results, performance or achievements expressed in or implied by our forward-looking statements, including the factors listed below. Many of the factors that will determine future results, performance or achievements are beyond our ability to control or predict. The following are important factors, among others, that could cause actual results, performance or achievements to differ materially from the results, performance or achievements reflected in our forward-looking statements:

our ability to continue as a going concern;

our ability to produce full-scale commercial quantities of isobutanol and/or ethanol in a timely and economic manner;

our ability to effectively use the net proceeds from this offering;

fluctuations in the market price of petroleum;

fluctuations in the market price of corn and other feedstocks;

unexpected delays, operational difficulties, cost-overruns or failures in the Retrofit process;

our ability to successfully identify and acquire access to additional facilities suitable for efficient Retrofitting;

our ability to successfully commercialize isobutanol and the products derived from it;

our ability to market our isobutanol to potential customers;

our ability to obtain regulatory approval for the use of our isobutanol and the products derived from our isobutanol, including, without limitation, our renewable jet fuel, in our target markets;

our ability to adequately protect our intellectual property, or the loss of some of our intellectual property rights through costly litigation or administrative proceedings;

our ability to transition our preliminary commitments into definitive supply and distribution agreements or to negotiate sufficient long-term supply agreements for our production of isobutanol; and

general economic conditions and inflation, interest rate movements and access to capital.

The forward-looking statements contained herein reflect our views and assumptions only as of the date such forward-looking statements are made. You should not place undue reliance on forward-looking statements. Except as required by law, we assume no responsibility for updating any forward-looking statements nor do we

intend to do so. Our actual results, performance or achievements could differ materially from the results expressed in, or implied by, these forward-looking statements. The risks included in this section are not exhaustive. Additional factors that could cause actual results to differ materially from those described in the forward-looking statements are set forth in the section entitled "Risk Factors" beginning on page S-14 of this prospectus supplement.

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USE OF PROCEEDS

We expect the net proceeds from this offering to be approximately \$ _____, after deducting underwriting discounts and commissions as described in Underwriting, and estimated offering expenses payable by us. We currently intend to use the net proceeds from this offering to fund working capital, including capital expenditures at the Agri-Energy Facility, and for other general corporate purposes.

As of the date of this prospectus supplement, we cannot specify with certainty all of the particular uses of the proceeds from this offering. Accordingly, we will retain broad discretion over the use of such proceeds. Pending the use of the net proceeds from this offering, as described above, we intend to invest the net proceeds in demand deposit accounts.

CAPITALIZATION

The following table sets forth our cash and cash equivalents and stockholders' equity as of September 30, 2015:

on an actual basis; and

as adjusted to give effect to the receipt of estimated net proceeds of \$ _____ from this offering at an offering price of \$ _____ per Series A unit and an offering price of \$ _____ per Series B unit, after deducting estimated underwriting discounts and estimated offering expenses payable by us.

The following table should be read in conjunction with our consolidated financial statements and related notes, which are incorporated by reference into this prospectus supplement (unaudited):

	September 30, 2015	
	Actual	As Adjusted
Cash and cash equivalents	\$ 16,203,000	\$ _____
Debt:		
Secured debt, net of debt discounts	561,000	
Convertible Notes, net	37,121,000	
Other long-term liabilities	147,000	
Total debt	\$ 37,829,000	\$ _____
Stockholders' equity:		
Common stock, \$0.01 par value per share; 250,000,000 shares authorized; 16,947,088 issued and outstanding, actual; 250,000,000 shares authorized, _____ shares issued and outstanding, as adjusted	\$ 169,000	\$ _____
Additional paid-in capital	384,279,000	
Accumulated deficit	(331,530,000)	
Total stockholders' equity	\$ 52,918,000	\$ _____
Total capitalization	\$ 90,747,000	\$ _____

The as adjusted number of shares of our common stock is based on 16,947,088 shares of common stock outstanding as of September 30, 2015 and excludes the following, measured as of November 30, 2015 (the most recent practicable

date):

8,644,723 shares reserved for issuance pursuant to outstanding options, warrants or rights to acquire from the Company, or instruments convertible into or exchangeable for, or agreements or understandings with respect to the sale or issuance by the Company of, common stock;

69,860 shares of common stock available for future grant under our 2010 Plan;

76,629 shares of common stock available for issuance pursuant to our Employee Stock Purchase Plan; and

shares of common stock issuable upon the exercise of the warrants offered hereby.

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DESCRIPTION OF OUR COMMON STOCK

Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 250,000,000 shares of common stock, par value \$0.01 per share, and 10,000,000 shares of preferred stock, par value \$0.01 per share, issuable in one or more series designated by our board of directors. As of November 30, 2015, there were 18,072,207 shares of common stock and no shares of preferred stock outstanding.

The material terms and provisions of our common stock and each other class of our securities which may qualify or limit the rights and privileges of our common stock are described under the caption Description of Capital Stock starting on page 13 of the accompanying prospectus.

DESCRIPTION OF OUR WARRANTS

The following description of the warrants offered hereby is a summary. It summarizes only those aspects of the warrants that we believe will be most important to your decision to invest in the warrants. You should keep in mind, however, that it is the terms in the warrants, and not this summary that define your rights as a holder of the warrants. There may be other provisions in the warrants that are also important to you. You should read the forms of the warrants for a full description of the terms of the warrants.

Each full Series D warrant entitles the holder thereof to purchase one share of our common stock at an exercise price equal to \$ _____ per share. The Series D warrants will be exercisable during the period commencing on June _____, 2016 and ending on December _____, 2020, the expiration date of the Series D warrants. Each full pre-funded Series E warrant entitles the holder thereof to purchase one share of our common stock at an exercise price equal to \$ _____ per share. The exercise price of \$ _____ per share, except for a nominal exercise price of \$0.01 per share, will be pre-paid to us upon issuance of the pre-funded Series E warrants and, consequently, no additional payment or other consideration (other than the nominal exercise price of \$0.01 per share) will be required to be delivered to us by the holder upon exercise. The pre-funded Series E warrants will be exercisable during the period commencing on the date of original issuance and ending on December _____, 2016, the expiration date of the pre-funded Series E warrants.

The purpose of the pre-funded Series E warrants is to enable investors that may have restrictions on their ability to beneficially own more than 4.99% of our outstanding common stock following the consummation of this offering the opportunity to invest capital into the Company without triggering such ownership restrictions. By receiving pre-funded Series E warrants in lieu of the shares of common stock contained in the Series A units which would result in such holders' ownership exceeding 4.99%, such holders will have the ability to exercise their options to purchase the shares underlying the pre-funded Series E warrants for nominal consideration at a later date. Pre-funded Series E warrants that expire unexercised will have no further value and the holders of such warrants will lose the pre-funded amount.

The warrants may be exercised by delivering to the Company a written notice of election to exercise the warrant, appropriately completed, duly signed and delivered, and delivering to the Company cash payment of the exercise price, if applicable. Upon delivery of the written notice of election to exercise the warrant, appropriately completed and duly signed, and cash payment of the exercise price, if applicable, on and subject to the terms and conditions of the applicable warrant, we will deliver or cause to be delivered, to or upon the written order of such holder, the number of whole shares of common stock to which the holder is entitled, which shares may be delivered in book-entry form. If a warrant is exercised for fewer than all of the shares of common stock for which such warrant may be exercised, then upon request of the holder and surrender of such warrant, we shall issue a new warrant exercisable for the remaining number of shares of common stock.

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If, and only if, a registration statement relating to the issuance of the shares underlying the warrants is not then effective or available, a holder of warrants may exercise the warrants on a cashless basis, where the holder receives the net value of the warrant in shares of common stock. However, if an effective registration statement is available for the issuance of the shares underlying the warrants, a holder may only exercise the warrants through a cash exercise. Shares issued pursuant to a cashless exercise would be issued pursuant to the exemption from registration provided by Section 3(a)(9) of the Securities Act, and thus the shares of common stock issued upon such cashless exercise would take on the characteristics of the warrants being exercised, including, for purposes of Rule 144(d) promulgated under the Securities Act, a holding period beginning from the original issuance date of the warrants.

If we fail to timely deliver shares of common stock pursuant to any warrant exercise, and such exercising holder elects to purchase shares of common stock (in an open market transaction or otherwise) to deliver in satisfaction of a sale by such holder of all or a portion of the shares of common stock for which such warrant was exercised, then we will be required to deliver, at the holder's election, either (i) an amount in cash equal to the full purchase price paid by the holder to acquire such alternative shares or (ii) (A) the shares of common stock for which the warrant was exercised and (B) an amount in cash equal to the excess (if any) by which the price paid for the alternative shares exceeds the lowest closing sale price of our common stock during the period beginning on the exercise date and ending on the date such payment is delivered. Notwithstanding the foregoing, if we are prohibited by restrictions contained in any of our credit agreements from making any payments described above in cash, we may instead satisfy any such payment obligation by delivering to the holder a number of shares of common stock equal to the cash payment amount divided by 90% of the last volume weighted average price of our common stock on the date of such payment.

If, at any time while the warrants are outstanding, we directly or indirectly, in one or more related transactions, enter into a fundamental transaction, as described in the warrants and generally including any merger with or into another entity, sale of all or substantially all of our assets, tender offer or exchange offer, or reclassification of our common stock, then each holder shall become entitled to receive the same amount and kind of securities, cash or property as such holder would have been entitled to receive upon the occurrence of such fundamental transaction if the holder had been, immediately prior to such fundamental transaction, the holder of the number of shares of common stock then issuable upon exercise of such holder's warrants. Any successor to us, surviving entity or the corporation purchasing or otherwise acquiring such assets shall assume the obligation to deliver to the holder such alternate consideration, and the other obligations, under the warrants. Additionally, in the event of a fundamental transaction, we or any successor entity will, at the holder's option, exercisable prior to the date that is 30 days after the public announcement of the consummation of the fundamental transaction, purchase the unexercised portion of the warrant for an amount of cash equal to the value of the warrants as determined in accordance with the Black Scholes option pricing model and the terms of the warrants.

The exercise price and the number and type of securities purchasable upon exercise of the warrants are subject to adjustment upon certain corporate events, including certain combinations, consolidations, liquidations, mergers, recapitalizations, reclassifications, reorganizations, stock dividends and stock splits, a sale of all or substantially all of our assets and certain other events.

In addition, the Series D warrants contain full ratchet anti-dilution protection upon the issuance of any common stock, securities convertible into common stock or certain other issuances at a price below the then-existing exercise price of the Series D warrants, with certain exceptions. In the event that the Company issues securities convertible into common stock in connection with an issuance of other of its securities in a single integrated offering, the new exercise price will be determined by calculating the aggregate consideration received by the Company for such other securities less \$0.10 per convertible security. In addition, the Company has the right at any time during the term of the Series D warrants to reduce the then-existing exercise price to any amount and for any period of time deemed appropriate by our board of directors. The terms of the warrants, including the anti-dilution protections described above, may make it difficult for us to raise additional capital at prevailing market terms in the future.

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If, at any time while the warrants are outstanding, we declare or make any dividend or other distribution of our assets to holders of shares of our common stock, by way of return of capital or otherwise (including, without limitation, any distribution of cash, stock or other securities, property, options, evidence of indebtedness or any other assets by way of a dividend, spin off, reclassification, corporate rearrangement, scheme of arrangement or other similar transaction) or we grant, issue or sell any options, convertible securities or rights to purchase stock, warrants, securities or other property pro rata to the record holders of any class of common stock (in each case, Distributed Property), then each holder of a warrant shall receive, with respect to the shares of common stock issuable upon exercise of such warrant, the Distributed Property that such holder would have been entitled to receive had the holder been the record holder of such number of shares of common stock issuable upon exercise of the warrant immediately prior to the record date for such Distributed Property.

No fractional shares will be issued upon exercise of the warrants. Except as set forth in the respective warrants, the warrants do not confer upon holders any voting or other rights as stockholders of the Company.

A holder (together with its affiliates) may not exercise any portion of the warrant to the extent that the holder would beneficially own more than 4.99% of our outstanding common stock after exercise. The holder may increase or decrease this beneficial ownership limitation to any other percentage not in excess of 9.99%, upon, in the case of an increase, not less than 61 days prior written notice to us.

MATERIAL UNITED STATES FEDERAL INCOME TAX CONSEQUENCES

The following is a summary of the material U.S. federal income tax consequences arising from and relating to the acquisition, ownership and disposition of (i) shares of common stock acquired as part of the Series A units (shares of common stock), (ii) warrants acquired as part of the Series A units or Series B units (warrants), including their exercise and lapse, and (iii) shares of common stock received on the exercise of the warrants (warrant shares).

Scope of this Summary

This summary is for general information purposes only and does not purport to be a complete analysis or listing of all potential U.S. federal income tax consequences related to the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares. Except as specifically set forth below, this summary does not discuss applicable tax reporting requirements. In addition, this summary does not take into account the individual facts and circumstances of any particular holder that may affect the U.S. federal income tax consequences to such holder.

Accordingly, this summary is not intended to be, and should not be construed as, legal or tax advice with respect to any particular holder. Each holder should consult its own tax advisors regarding the U.S. federal, state and local, and non-U.S. tax consequences related to the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares.

No legal opinion from U.S. legal counsel or ruling from the Internal Revenue Service (the IRS) has been requested, or will be obtained, regarding the U.S. federal income tax consequences related to the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares. This summary is not binding on the IRS, and the IRS is not precluded from taking a position that is different from, and contrary to, the positions taken in this summary.

Authorities

This summary is based upon provisions of the Internal Revenue Code of 1986, as amended (the Code), regulations, rulings and judicial decisions as of the date hereof. Those authorities may be changed, perhaps retroactively, or be subject to differing interpretations, so as to result in U.S. federal tax considerations different from those summarized below.

U.S. Holders

As used in this summary, the term U.S. Holder means a beneficial owner of shares of common stock, warrants or warrant shares acquired pursuant to this prospectus supplement that is, for U.S. federal income tax purposes:

an individual who is a citizen or resident of the U.S.;

a corporation (or other entity taxable as a corporation) organized under the laws of the U.S., any state thereof or the District of Columbia;

an estate whose income is subject to U.S. federal income taxation regardless of its source; or

a trust that (1) is subject to the primary supervision of a court within the U.S. and the control of one or more U.S. persons for all substantial decisions or (2) has a valid election in effect under applicable Treasury Regulations to be treated as a U.S. person.

Non-U.S. Holders

For purposes of this summary, a Non-U.S. holder means a beneficial owner of shares of common stock, warrants, or warrant shares acquired pursuant to this prospectus supplement that is neither a U.S. Holder nor a partnership (or an entity or arrangement treated as a partnership for U.S. federal income tax purposes). A Non-U.S. Holder should review the discussion under the heading Non-U.S. Holders below for more information.

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Holders Subject to Special U.S. Federal Income Tax Rules

This summary deals only with persons or entities who hold shares of common stock, warrants or warrant shares as a capital asset within the meaning of Section 1221 of the Code (generally, property held for investment purposes). This summary does not address all aspects of U.S. federal income taxation that may be applicable to holders in light of their particular circumstances or to holders subject to special treatment under U.S. federal income tax law, such as: banks, insurance companies, and other financial institutions; dealers or traders in securities, commodities or foreign currencies; regulated investment companies; U.S. expatriates or former long-term residents of the U.S.; persons holding shares of common stock, warrants or warrant shares as part of a straddle, appreciated financial position, synthetic security, hedge, conversion transaction or other integrated investment; persons holding shares of common stock, warrants or warrant shares as a result of a constructive sale; entities that acquire shares of common stock, warrants and warrant shares that are treated as partnerships for U.S. federal income tax purposes and partners in such partnerships; real estate investment trusts; U.S. Holders that have a functional currency other than the U.S. dollar; holders that acquired shares of common stock, warrants, or warrant shares in connection with the exercise of employee stock options or otherwise as consideration for services; or holders that are controlled foreign corporations or passive foreign investment companies. Holders that are subject to special provisions under the Code, including holders described immediately above, should consult their own tax advisors regarding the U.S. federal, state and local, and non-U.S. tax consequences arising from and relating to the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares.

If an entity classified as a partnership for U.S. federal income tax purposes holds shares of common stock, warrants or warrant shares, the tax treatment of a partner will generally depend on the status of the partner and the activities of the partnership. This summary does not address the tax consequences to any such owner or entity. Partners of entities or arrangements that are classified as partnerships for U.S. federal income tax purposes should consult their own tax advisors regarding the U.S. federal income tax consequences arising from and relating to the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares.

Tax Consequences Not Addressed

This summary does not address the U.S. state and local, U.S. federal estate and gift, U.S. federal alternative minimum tax, or non-U.S. tax consequences to holders of the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares. Each holder should consult its own tax advisors regarding the U.S. state and local, U.S. federal estate and gift, U.S. federal alternative minimum tax, and non-U.S. tax consequences of the acquisition, ownership and disposition of shares of common stock, warrants and warrant shares.

Characterization of the Units

For U.S. federal income tax purposes, the purchase by U.S. Holders or Non-U.S. Holders of a Series A unit comprised of one share of common stock and Series D warrants under this prospectus supplement will be treated as the purchase of two components: a component consisting of one share of common stock and a component consisting of Series D warrants to purchase one share of common stock. Similarly, the purchase of a Series B unit comprised of a pre-funded Series E warrant to purchase one share of common stock and Series D warrants under this prospectus supplement will be treated as the purchase of two components: a component consisting of a pre-funded Series E warrant and a component consisting of Series D warrants to purchase one share of common stock (each of the Series A units and the Series B units, a unit). The purchase price for each unit will be allocated between these two components in proportion to their relative fair market values at the time the unit is purchased. This allocation of the purchase price for each unit will establish the holder's initial tax basis for U.S. federal income tax purposes in the components that comprise each unit.

For this purpose, we will allocate part of the purchase price for each unit to each component which comprises such unit. This allocation will be based upon our determination of the relative values of such components, which

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we will complete following the closing of the offering. This allocation is binding on you unless you explicitly disclose in a statement attached to your timely filed U.S. federal income tax return for the tax year that includes your acquisition date of the unit that your allocation of the purchase price is different than our allocation. However, the IRS will not be bound by our allocation of the purchase price for such units, and therefore, the IRS or a U.S. court may not respect our allocation. Each holder should consult its own tax advisor regarding the allocation of the purchase price for the units.

U.S. Holders

Exercise of Warrants

A U.S. Holder generally will not recognize gain or loss on the exercise of a warrant and related receipt of a warrant share (unless cash is received in lieu of the issuance of a fractional warrant share). A U.S. Holder's initial tax basis in the warrant share received on the exercise of a warrant should be equal to the sum of (i) the U.S. Holder's tax basis in the warrant plus (ii) the exercise price paid by the U.S. Holder on the exercise of the warrant. A U.S. Holder's holding period for the warrant share received on the exercise of a warrant will begin on the day after the warrant is exercised by the U.S. Holder.

The U.S. federal income tax treatment of a cashless exercise of warrants into warrant shares is unclear, and the tax consequences of a cashless exercise could differ from the consequences upon the exercise of a warrant described in the preceding paragraph. U.S. Holders should consult their own tax advisors regarding the U.S. federal income tax consequences of a cashless exercise of warrants.

Disposition of Warrants

A U.S. Holder will recognize gain or loss on the sale or other taxable disposition of a warrant in an amount equal to the difference, if any, between (i) the amount of cash plus the fair market value of any property received upon such taxable disposition and (ii) the U.S. Holder's tax basis in the warrant sold or otherwise disposed of. Any such gain or loss generally will be a capital gain or loss, which will be long-term capital gain or loss if the warrant is held for more than one year. Long-term capital gains recognized by certain non-corporate U.S. Holders (including individuals) may be eligible for preferential rates of taxation. Deductions for capital losses are subject to limitations under the Code.

Expiration of Warrants without Exercise

Upon the lapse or expiration of a warrant, a U.S. Holder will recognize a loss in an amount equal to such U.S. Holder's tax basis in the warrant. Any such loss generally will be a capital loss and will be long-term capital loss if the warrant is held for more than one year. Deductions for capital losses are subject to limitations under the Code.

Certain Adjustments to the Warrants

Under Section 305 of the Code, an adjustment to the number of warrant shares that will be issued on the exercise of the warrants, or an adjustment to the exercise price of the warrants, may be treated as a constructive distribution to a U.S. Holder of the warrants if, and to the extent that, such adjustment has the effect of increasing such U.S. Holder's proportionate interest in our earnings and profits or assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to our stockholders). Adjustments to the exercise price of a warrant made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders of the warrants should generally not result in a constructive distribution (see the more detailed discussion of the rules applicable to distributions made by us at *Distributions on Shares of Common Stock and Warrant Shares* below).

Distributions on Shares of Common Stock and Warrant Shares

We have never declared or paid any cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. If we were to pay cash dividends in the future, such

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distributions made on shares of common stock and warrant shares generally would be included in a U.S. Holder's income as ordinary dividend income to the extent of our current and accumulated earnings and profits (determined under U.S. federal income tax principles) as of the end of our taxable year in which the distribution occurred. Dividends received by certain non-corporate U.S. Holders may be eligible for taxation at preferential rates provided certain holding period and other requirements are satisfied. Distributions in excess of our current and accumulated earnings and profits will be treated as a return of capital to the extent of a U.S. Holder's adjusted tax basis in the shares and thereafter as capital gain from the sale or exchange of such shares, which will be taxable according to rules discussed under the heading *Sale, Certain Redemptions or Other Taxable Dispositions of Shares of Common Stock and Warrant Shares*, below. Dividends received by a corporate holder may be eligible for a dividends received deduction, subject to applicable limitations.

Sale, Certain Redemptions or Other Taxable Dispositions of Shares of Common Stock and Warrant Shares

Upon the sale, certain qualifying redemptions, or other taxable disposition of shares of common stock or warrant shares, a U.S. Holder generally will recognize capital gain or loss equal to the difference, if any, between (i) the amount of cash and the fair market value of any property received upon such taxable disposition and (ii) the U.S. Holder's adjusted tax basis in the shares of common stock or warrant shares sold or otherwise disposed of. Such capital gain or loss will be long-term capital gain or loss if a U.S. Holder's holding period in the shares of common stock or warrant shares is more than one year at the time of the taxable disposition. Long-term capital gains recognized by certain non-corporate U.S. Holders (including individuals) may be eligible for taxation at preferential rates. Deductions for capital losses are subject to limitations under the Code.

Additional Tax on Passive Income

Individuals, estates and certain trusts whose income exceeds certain thresholds will be required to pay a 3.8% Medicare surtax on net investment income including, among other things, dividends and net gain from disposition of property (other than property held in certain trades or businesses). U.S. Holders should consult their own tax advisors regarding the effect, if any, of this tax on their ownership and disposition of shares of common stock, warrants and warrant shares.

Information Reporting and Backup Withholding

Information reporting requirements generally will apply to payments of dividends on shares of common stock and warrant shares and to the proceeds of a sale of shares of common stock, warrants or warrant shares paid to a U.S. Holder unless the U.S. Holder is an exempt recipient (such as a corporation). Backup withholding will apply to those payments if the U.S. Holder fails to provide its correct taxpayer identification number, or certification of exempt status, or if the U.S. Holder is notified by the IRS that it has failed to report in full payments of interest and dividend income. Backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules generally will be allowed as a refund or a credit against a U.S. Holder's U.S. federal income tax liability, if any, provided the required information is furnished in a timely manner to the IRS.

Non-U.S. Holders

Exercise of Warrants

A Non-U.S. Holder generally will not recognize gain or loss for U.S. tax purposes on the exercise of a warrant and related receipt of a warrant share (unless cash is received in lieu of the issuance of a fractional warrant share and certain other conditions are present, as discussed below under *Sale or Other Taxable Disposition of Shares of Common Stock, Warrants and Warrant Shares*).

The U.S. federal income tax treatment of a cashless exercise of warrants into warrant shares is unclear, and the tax consequences of a cashless exercise could differ from the consequences upon the exercise of a warrant described in the preceding paragraph. Non-U.S. Holders should consult their own tax advisors regarding the U.S. federal income tax consequences of a cashless exercise of warrants.

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Expiration of Warrants without Exercise

Upon the lapse or expiration of a warrant, a Non-U.S. Holder will not recognize a capital loss unless such Non-U.S. Holder is otherwise subject to U.S. federal income tax.

Certain Adjustments to the Warrants

Under Section 305 of the Code, an adjustment to the number of warrant shares that will be issued on the exercise of the warrants, or an adjustment to the exercise price of the warrants, may be treated as a constructive distribution to a Non-U.S. Holder of the warrants if, and to the extent that, such adjustment has the effect of increasing such Non-U.S. Holder's proportionate interest in our earnings and profits or assets, depending on the circumstances of such adjustment (for example, if such adjustment is to compensate for a distribution of cash or other property to our stockholders). Adjustments to the exercise price of a warrant made pursuant to a bona fide reasonable adjustment formula that has the effect of preventing dilution of the interest of the holders of the warrants should generally not result in a constructive distribution. See the more detailed discussion of the rules applicable to distributions made by us under the heading "Distributions on Shares of Common Stock and Warrant Shares" below.

Distributions on Shares of Common Stock and Warrant Shares

We have never declared or paid any cash dividends on our common stock and do not anticipate paying any cash dividends on our common stock in the foreseeable future. If we were to pay cash dividends in the future on our common stock, they would be subject to U.S. federal income tax in the manner described below.

Cash distributions on shares of common stock and warrant shares generally will constitute dividends for U.S. federal income tax purposes to the extent paid out of our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. Distributions in excess of current and accumulated earnings and profits will be applied against and reduce a Non-U.S. Holder's tax basis in shares of common stock or warrant shares, to the extent thereof, and any excess will be treated as capital gain realized on the sale or other disposition of the shares and subject to tax in the manner described under the heading "Sale or Other Taxable Disposition of Shares of Common Stock, Warrants and Warrant Shares," below.

Any dividends paid to a Non-U.S. Holder with respect to shares of common stock or warrant shares that constitute dividends under the rules described above generally will be subject to withholding of U.S. federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with the conduct of a trade or business by a Non-U.S. Holder within the U.S. and, where an income tax treaty applies, are attributable to a U.S. permanent establishment of the Non-U.S. Holder, are not subject to this withholding tax, but instead are subject to U.S. federal income tax on a net income basis at applicable individual or corporate rates. A Non-U.S. Holder generally must deliver an IRS Form W-8ECI certifying under penalties of perjury that such dividends are effectively connected with a U.S. trade or business of the holder in order for effectively connected dividends to be exempt from this withholding tax. Any such effectively connected dividends received by a foreign corporation may be subject to an additional branch profits tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

A Non-U.S. Holder of shares of common stock or warrant shares who is entitled to and wishes to claim the benefits of an applicable treaty rate (and avoid backup withholding as discussed below) with respect to dividends received generally will be required to (i) complete an IRS Form W-8BEN or W-8BEN-E (or an acceptable substitute form) and make certain certifications, under penalty of perjury, to establish its status as a non-U.S. person and its entitlement to treaty benefits or (ii) if the stock is held through certain foreign intermediaries, satisfy the relevant certification requirements of applicable U.S. Treasury regulations. Special certification and other requirements apply to certain Non-U.S. Holders that are entities rather than individuals.

The certification requirements described above must be satisfied prior to the payment of dividends and may be required to be updated periodically. A Non-U.S. Holder eligible for a reduced rate of U.S. federal withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

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Sale or Other Taxable Disposition of Shares of Common Stock, Warrants and Warrant Shares

In general, a Non-U.S. Holder of shares of common stock, warrants or warrant shares will not be subject to U.S. federal income tax with respect to gain recognized on a sale or other disposition of such shares of common stock, warrants or warrant shares, unless: (i) the gain is effectively connected with a trade or business of the Non-U.S. Holder in the U.S. and, where a tax treaty applies, is attributable to a U.S. permanent establishment of the Non-U.S. Holder (in which case, the special rules described below apply), (ii) in the case of a Non-U.S. Holder who is an individual, such holder is present in the U.S. for 183 or more days in the taxable year of the sale or other disposition and certain other conditions are met, in which case the gain would be subject to a flat 30% tax, or such reduced rate as may be specified by an applicable income tax treaty, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the U.S.; or (iii) subject to certain exceptions, we are or have been a U.S. real property holding corporation, as such term is defined in Section 897(c) of the Code, during the shorter of the five-year period ending on the date of disposition or the holder's holding period of our shares of common stock, warrants or warrant shares.

We believe we currently are not, and do not anticipate becoming, a U.S. real property holding corporation for U.S. federal income tax purposes.

Any gain described in (i) above will be subject to U.S. federal income tax at the regular graduated rates. If the Non-U.S. Holder is a corporation, under certain circumstances, that portion of its earnings and profits that is effectively connected with its U.S. trade or business, subject to certain adjustments, generally would be subject to a branch profits tax. The branch profits tax rate is generally 30%, although an applicable income tax treaty between the U.S. and the Non-U.S. Holder's country of residence might provide for a lower rate.

Information Reporting and Backup Withholding

We must report annually to the IRS and to each Non-U.S. Holder the amount of dividends paid to such holder on the shares of common stock and warrant shares and the tax withheld (if any) with respect to such dividends, regardless of whether withholding was required. Copies of the information returns reporting such dividends and any withholding may also be made available to the tax authorities in the country in which the Non-U.S. Holder resides under the provisions of an applicable income tax treaty or information sharing agreement. In addition, dividends paid to a Non-U.S. Holder may be subject to backup withholding unless applicable certification requirements are met.

Payment of the proceeds of a sale of shares of common stock or warrant shares within the U.S. or conducted through certain U.S. related financial intermediaries is subject to information reporting and, depending upon the circumstances, backup withholding unless the Non-U.S. Holder certifies under penalties of perjury that it is not a U.S. person (and the payor does not have actual knowledge or reason to know that the holder is a U.S. person) or the holder otherwise establishes an exemption.

Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against such holder's U.S. federal income tax liability provided the required information is timely furnished to the IRS.

Foreign Account Tax Compliance Act (FATCA)

Legislation commonly referred to as the Foreign Account Tax Compliance Act and associated guidance, or FATCA, will generally impose a 30% U.S. federal withholding tax on any withholdable payment (as defined below) paid to (i) a foreign financial institution (as specifically defined in the legislation), whether such foreign financial institution is the beneficial owner or an intermediary, unless such foreign financial institution agrees to verify, report and disclose its U.S. account holders (as specifically defined in the legislation) and meets certain other specified requirements, or (ii) a non-financial foreign entity, whether such non-financial foreign entity is the beneficial owner or an intermediary,

unless such entity provides a certification that the beneficial owner of the payment does not have any substantial U.S. owners or provides the name, address and taxpayer identification

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number of each such substantial U.S. owner and certain other specified requirements are met. In certain cases, the relevant foreign financial institution or non-financial foreign entity may qualify for an exemption from, or be deemed to be in compliance with, these rules. Under final regulations and other current guidance, withholdable payments generally include dividends on shares of common stock and warrant shares, and will include the gross proceeds of a disposition of shares of common stock, warrants, and warrant shares, on or after January 1, 2019. Investors are urged to consult their own tax advisors regarding the possible application of these rules to their investment in our units, shares of common stock, warrants, and warrant shares.

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UNDERWRITING

We are offering Series A units and Series B units as described in this prospectus supplement and the accompanying prospectus through Oppenheimer & Co. Inc., the underwriter of this offering. We have entered into an underwriting agreement with the underwriter which provides that the underwriter must buy all of the units if it buys any of them. Our units are offered subject to a number of conditions, including:

receipt and acceptance of our units by the underwriter; and

the underwriter's right to reject orders in whole or in part.

Commissions and Discounts

Units sold by the underwriter to the public will initially be offered at the public offering prices set forth on the cover of this prospectus supplement. The underwriter may offer units to securities dealers at the public offering price less a concession not in excess of \$. If all the units are not sold at the applicable public offering price, the underwriter may change the offering price and the other selling terms. Upon execution of the underwriting agreement, the underwriter will be obligated to purchase the units at the prices and upon the terms stated therein.

The following table shows the per unit and total underwriting discounts and commissions we will pay to the underwriter.

Per Series A Unit	\$
Per Series B Unit	\$
Total	\$

We estimate that the total expenses of this offering payable by us, not including the underwriting discounts and commissions, will be approximately \$, which includes \$100,000 that we have agreed to reimburse to the underwriter for legal and other expenses incurred by it in connection with this offering. In accordance with FINRA Rule 5110, the amount reimbursed to the underwriter is deemed underwriter compensation for this offering.

Discretionary Accounts

The underwriter does not intend to confirm sales of the securities to any accounts over which it has discretionary authority.

Stabilization

In connection with this offering, the underwriter may engage in stabilizing transactions and syndicate covering transactions and purchases to cover positions created by short sales.

Stabilizing transactions permit bids to purchase shares of common stock so long as the stabilizing bids do not exceed a specified maximum, and are engaged in for the purpose of preventing or retarding a decline in the market price of the common stock while the offering is in progress.

Syndicate covering transactions involve purchases of common stock in the open market after the distribution has been completed in order to cover syndicate short positions. Since there is no over-allotment option, if the underwriter would have a naked short position, it can be closed out only by buying shares in the open market. A naked short position is more likely to be created if the underwriter is concerned that after pricing there could be downward pressure on the price of the shares in the open market that could adversely affect investors who purchase in the offering.

Penalty bids permit the underwriter to reclaim a selling concession from a syndicate member when the security originally sold by the syndicate member is purchased in a stabilizing or syndicate covering transaction to cover

syndicate short positions. These stabilizing transactions, syndicate covering transactions and penalty bids may have the effect of raising or maintaining the market price of our common stock or preventing or retarding a decline in the market price of our common stock. As a result, the price of our common stock in the open market may be higher than it would otherwise be in the absence of these transactions. Neither we nor the underwriter makes any representation or prediction as to the effect that the transactions described above may have on the price of our common stock. These transactions may be effected on the NASDAQ Capital Market, in the over-the-counter market or otherwise and, if commenced, may be discontinued at any time.

Passive Market Making

In connection with this offering, the underwriter and selling group members may engage in passive market making transactions in our common stock on the NASDAQ Capital Market in accordance with Rule 103 of Regulation M under the Securities Exchange Act of 1934, as amended, during a period before the commencement of offers or sales of securities and extending through the completion of the distribution. A passive market maker must display its bid at a price not in excess of the highest independent bid of that security. However, if all independent bids are lowered below the passive market maker's bid, that bid must then be lowered when specified purchase limits are exceeded.

No Sales of Similar Securities

We, and our executive officers and directors, have entered into lock-up agreements with the underwriter. Under these agreements, we and each of these persons may not, without the prior written approval of Oppenheimer & Co. Inc., offer, sell, contract to sell, pledge, or otherwise dispose of, directly or indirectly, or hedge our common stock, any debt securities of the Company or any other securities of the Company that are substantially similar to our common stock, or securities convertible into or exchangeable or exercisable for our common stock, except in the circumstances described below. These restrictions will be in effect for a period of 90 days after the date of this prospectus supplement. At any time and without public notice, Oppenheimer & Co. Inc. may, in its sole discretion, release some or all of the securities from these lock-up agreements.

The restrictions set forth above are subject to customary exceptions and, in addition to such customary exceptions, shall not apply to:

the issuance by us of the common stock and warrants being offered hereby and the issuance by us of common stock upon the exercise of such warrants;

our registration under the Securities Act and the issuance and sale by us of shares of our common stock to vendors, consultants and service providers as compensation or to settle bona fide liabilities or to one or more counterparties in connection with any strategic partnership, joint venture, collaboration, lending or other similar arrangement, or in connection with the acquisition or license by the Company or any of its subsidiaries of any business, products, facilities, or intellectual property as long as (i) the number of shares issued does not exceed 15% of the number of shares of our common stock outstanding immediately after this offering and (ii) each of the recipients of these shares executes a lock-up agreement for the remainder of the lock-up period;

our registration under the Securities Act and the issuance by us of shares of common stock issuable upon conversion of the Convertible Notes, including the issuance of common stock in full satisfaction of any interest or coupon make-whole payments due in connection therewith;

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transfers by our executive officers and directors in connection with the receipt or vesting of securities issued by us pursuant to any equity incentive or other compensatory plans, including the withholding by us or the surrender of such securities and/or any sale or other disposition of such securities, solely in order to satisfy tax liabilities with respect to such issuance or vesting or any deemed disposition or deemed sale with respect to such securities; or

transfers by our executive officers and directors pursuant to existing trading plans pursuant to Rule 10b5-1 under the Exchange Act.

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Electronic Offer, Sale and Distribution of Securities

A prospectus in electronic format may be made available on the websites maintained by the underwriter or selling group members, if any, participating in this offering and the underwriter may distribute prospectuses electronically. The underwriter may agree to allocate a number of securities to selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the underwriter and selling group members that will make internet distributions on the same basis as other allocations. Other than the prospectus in electronic format, the information on these websites is not part of this prospectus or the registration statement of which this prospectus forms a part, has not been approved or endorsed by us or the underwriter in its capacity as underwriter, and should not be relied upon by investors.

Indemnification

We have agreed to indemnify the underwriter against certain liabilities, including certain liabilities under the Securities Act. If we are unable to provide this indemnification, we have agreed to contribute to payments the underwriter may be required to make in respect of those liabilities.

NASDAQ Stock Market Listing

Our common stock is listed on the NASDAQ Capital Market under the symbol GEVO. The warrants are not and will not be listed for trading on the NASDAQ Capital Market, or any other securities exchange.

Affiliations

The underwriter and certain of its affiliates have in the past provided, are currently providing or may in the future from time to time provide, investment banking and other financing, trading, banking, research, transfer agent and trustee services to the Company, for which they have in the past received, and may currently or in the future receive, customary fees and expenses.

NOTICE TO INVESTORS

Notice to prospective investors in the European Economic Area

In relation to each member state of the European Economic Area (the "EEA") that has implemented the Prospectus Directive (as defined below) (each, a "Relevant Member State"), other than Germany, with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, an offer of securities described in this prospectus supplement may not be made to the public in that Relevant Member State other than:

to any legal entity which is a qualified investor as defined in the Prospectus Directive;

by the underwriter to fewer than 100 or, if the Relevant Member State has implemented the relevant provisions of the 2010 PD Amending Directive (as defined below), 150, natural or legal persons (other than qualified investors as defined in the Prospectus Directive), as permitted under the Prospectus Directive, subject to obtaining the prior consent of Oppenheimer & Co. Inc. for any such offer; or

in any other circumstances falling within Article 3(2) of the Prospectus Directive; provided that no such offer of securities shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive.

For purposes of this provision, the expression an "offer of securities to the public" in any Relevant Member State means the communication in any form and by any means of sufficient information on the terms of the offer and the securities to be offered so as to enable an investor to decide to purchase or subscribe for the securities, as the expression may be varied in that member state by any measure implementing the Prospectus Directive in that member state, and the expression "Prospectus Directive" means Directive 2003/71/EC (and amendments thereto, including the 2010 PD Amending Directive, to the extent implemented in the Relevant Member State), and includes any relevant implementing measure in the Relevant Member State. The expression "2010 PD Amending Directive" means Directive 2010/73/EU.

We have not authorized and do not authorize the making of any offer of securities through any financial intermediary on its behalf, other than offers made by the underwriter with a view to the final placement of the securities as contemplated in this prospectus. Accordingly, no purchaser of the securities, other than the underwriter, is authorized to make any further offer of the securities on behalf of us or the underwriter.

The EEA selling restriction is in addition to any other selling restrictions set out in this prospectus.

Notice to prospective investors in Australia

This prospectus supplement is not a formal disclosure document and has not been, nor will be, lodged with the Australian Securities and Investments Commission. It does not purport to contain all information that an investor or its professional advisers would expect to find in a prospectus or other disclosure document (as defined in the Corporations Act 2001 (Australia)) for the purposes of Part 6D.2 of the Corporations Act 2001 (Australia) or in a product disclosure statement for the purposes of Part 7.9 of the Corporations Act 2001 (Australia), in either case, in relation to the securities.

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The securities are not being offered in Australia to retail clients as defined in Sections 761G and 761GA of the Corporations Act 2001 (Australia). This offering is being made in Australia solely to wholesale clients for the purposes of Section 761G of the Corporations Act 2001 (Australia) and, as such, no prospectus, product disclosure statement or other disclosure document in relation to the securities has been, or will be, prepared.

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This prospectus supplement does not constitute an offer in Australia other than to wholesale clients. By submitting an application for our securities, you represent and warrant to us that you are a wholesale client for the purposes of Section 761G of the Corporations Act 2001 (Australia). If any recipient of this prospectus supplement is not a wholesale client, no offer of, or invitation to apply for, our securities shall be deemed to be made to such recipient and no applications for our securities will be accepted from such recipient. Any offer to a recipient in Australia, and any agreement arising from acceptance of such offer, is personal and may only be accepted by the recipient. In addition, by applying for our securities you undertake to us that, for a period of 12 months from the date of issuance of the securities, you will not transfer any interest in the securities to any person in Australia other than to a wholesale client.

Notice to prospective investors in Hong Kong

Our securities may not be offered or sold in Hong Kong, by means of this prospectus supplement or any document other than (1) to professional investors within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder, (2) in circumstances which do not constitute an offer to the public within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong), or (3) in other circumstances which do not result in the document being a prospectus within the meaning of the Companies Ordinance (Cap. 32, Laws of Hong Kong). No advertisement, invitation or document relating to our securities may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere) which is directed at, or the contents of which are likely to be accessed or read by, the public in Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to the securities which are or are intended to be disposed of only to persons outside Hong Kong or only to professional investors within the meaning of the Securities and Futures Ordinance (Cap. 571, Laws of Hong Kong) and any rules made thereunder.

Notice to prospective investors in Japan

Our securities have not been and will not be registered under the Financial Instruments and Exchange Law of Japan (the Financial Instruments and Exchange Law) and our securities will not be offered or sold, directly or indirectly, in Japan, or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan, or to a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Law and any other applicable laws, regulations and ministerial guidelines of Japan.

Notice to prospective investors in Singapore

This document has not been registered as a prospectus with the Monetary Authority of Singapore and in Singapore, the offer and sale of our securities is made pursuant to exemptions provided in Sections 274 and 275 of the Securities and Futures Act, Chapter 289 of Singapore (the SFA). Accordingly, this prospectus supplement and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of our securities may not be circulated or distributed, nor may our securities be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (1) to an institutional investor as defined in Section 4A of the SFA pursuant to Section 274 of the SFA, (2) to a relevant person as defined in Section 275(2) of the SFA pursuant to Section 275(1) of the SFA, or any person pursuant to Section 275(1A) of the SFA, and in accordance with the conditions specified in Section 275 of the SFA or (3) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA, in each case subject to compliance with the conditions (if any) set forth in the SFA. Moreover, this document is not a prospectus as defined in the SFA. Accordingly, statutory liability under the SFA in relation to the content of prospectuses would not apply. Prospective investors in Singapore should consider carefully whether an investment in our securities is suitable for them.

Where our securities are subscribed or purchased under Section 275 of the SFA by a relevant person, which is:

by a corporation (which is not an accredited investor as defined in Section 4A of the SFA), the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

for a trust (where the trustee is not an accredited investor), whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor; shares of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferable for six months after that corporation or that trust has acquired the shares under Section 275 of the SFA, except:

to an institutional investor (for corporations under Section 274 of the SFA) or to a relevant person defined in Section 275(2) of the SFA, or any person pursuant to an offer that is made on terms that such shares of that corporation or such rights and interest in that trust are acquired at a consideration of not less than \$200,000 (or its equivalent in a foreign currency) for each transaction, whether such amount is to be paid for in cash or by exchange of securities or other assets, and further for corporations, in accordance with the conditions specified in Section 275 of the SFA;

where no consideration is given for the transfer; or

where the transfer is by operation of law.

In addition, investors in Singapore should note that the securities acquired by them are subject to resale and transfer restrictions specified under Section 276 of the SFA, and they, therefore, should seek their own legal advice before effecting any resale or transfer of their securities.

Notice to prospective investors in Switzerland

This prospectus supplement does not constitute an issue prospectus pursuant to Article 652a or Article 1156 of the Swiss Code of Obligations (the "CO") and the shares will not be listed on the SIX Swiss Exchange. Therefore, this prospectus supplement may not comply with the disclosure standards of the CO and/or the listing rules (including any prospectus schemes) of the SIX Swiss Exchange. Accordingly, the shares may not be offered to the public in or from Switzerland, but only to a selected and limited circle of investors, which do not subscribe to the shares with a view to distribution.

Notice to prospective investors in the United Kingdom

This prospectus supplement is only being distributed to and is only directed at: (1) persons who are outside the United Kingdom; (2) investment professionals falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"); or (3) high net worth companies, and other persons to whom it may lawfully be communicated, falling within Article 49(2)(a) to (d) of the Order (all such persons falling within (1)-(3) together being referred to as "Relevant Persons"). The shares are only available to, and any invitation, offer or agreement to subscribe, purchase or otherwise acquire such shares will be engaged in only with, Relevant Persons.

Any person who is not a Relevant Person should not act or rely on this prospectus supplement or any of its contents.

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LEGAL MATTERS

The validity of the securities being offered by this prospectus will be passed upon by our counsel, Paul Hastings LLP, San Diego, California. Goodwin Procter LLP, New York, New York is counsel for the underwriter in connection with this offering.

EXPERTS

The consolidated financial statements incorporated in this prospectus supplement by reference from the Company's Annual Report on Form 10-K have been audited by Deloitte & Touche LLP, an independent registered public accounting firm for the year ended December 31, 2014, as stated in their report (which report expresses an unqualified opinion on the consolidated financial statements and includes explanatory paragraphs referring to Gevo, Inc.'s going concern uncertainty and development activities), which is incorporated herein by reference. Such consolidated financial statements have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We file annual, quarterly and special reports, proxy statements and other information with the SEC. You may read and copy any document we file at the SEC's Public Reference Room at 100 F Street, N.E., Washington, DC 20549. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the Public Reference Room. The SEC maintains an internet website at <http://www.sec.gov> that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC, including Gevo, Inc. You may also access our reports and proxy statements free of charge at our website, <http://www.gevo.com>. The information contained in, or that can be accessed through, our website is not part of this prospectus supplement. The prospectus included in this filing is part of a registration statement filed by us with the SEC. The full registration statement can be obtained from the SEC, as indicated above, or from us.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it, which means that we can disclose important information to you by referring you to another document that we have filed separately with the SEC. We hereby incorporate by reference the following information or documents into this prospectus supplement and the accompanying prospectus:

our Annual Report on Form 10-K for the fiscal year ended December 31, 2014, filed with the SEC on March 30, 2015, and the amendment thereto filed on Form 10-K/A on April 2, 2015;

our Quarterly Reports on Form 10-Q for the quarterly period ended March 31, 2015, filed with the SEC on May 12, 2015; the quarterly period ended June 30, 2015, filed with the SEC on August 7, 2015; and the quarterly period ended September 30, 2015, filed with the SEC on November 5, 2015, and the amendment thereto filed with the SEC on November 10, 2015;

our Current Reports on Forms 8-K and 8-K/A filed with the SEC on January 2, 2015, January 20, 2015, January 27, 2015, January 30, 2015, February 4, 2015, February 12, 2015, February 17, 2015, April 14, 2015, April 22, 2015, May 13, 2015, May 15, 2015, May 20, 2015, June 1, 2015, June 3, 2015, July 10, 2015, July 20,

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2015, August 4, 2015, August 27, 2015, September 24, 2015, November 10, 2015 and November 16, 2015; and

the description of our common stock contained in our Registration Statement on Form S-1 (File No. 333-168792), filed with the SEC on August 12, 2010, including any subsequent amendment or report filed for the purpose of amending such description.

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Any information in any of the foregoing documents will automatically be deemed to be modified or superseded to the extent that information in this prospectus supplement or the accompanying prospectus or in a later filed document that is incorporated or deemed to be incorporated herein by reference modifies or replaces such information.

We also incorporate by reference any future filings (other than current reports furnished under Item 2.02 or Item 7.01 of Form 8-K and exhibits filed on such form that are related to such items) made with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, until we sell all of the securities offered by this prospectus supplement. Information in such future filings updates and supplements the information provided in this prospectus supplement. Any statements in any such future filings will automatically be deemed to modify and supersede any information in any document we previously filed with the SEC that is incorporated or deemed to be incorporated herein by reference to the extent that statements in the later filed document modify or replace such earlier statements.

Upon written or oral request, we will provide to you, without charge, a copy of any or all of the documents that are incorporated by reference into this prospectus supplement and the accompanying prospectus but not delivered with the prospectus, including exhibits which are specifically incorporated by reference into such documents. Requests should be directed to: Gevo, Inc., Attention: Investor Relations, 345 Inverness Drive South, Building C, Suite 310, Englewood, Colorado 80112, telephone (303) 858-8358.

PROSPECTUS

\$250,000,000

Common Stock

Preferred Stock

Debt Securities

Warrants

Units

From time to time, we may offer up to \$250,000,000 of any combination of the securities described in this prospectus, either individually or in units. We may also offer common stock or preferred stock upon conversion of debt securities, common stock upon conversion of preferred stock, or common stock, preferred stock or debt securities upon the exercise of warrants.

We will provide the specific terms of these offerings and securities in one or more supplements to this prospectus. We may also authorize one or more free writing prospectuses to be provided to you in connection with these offerings. The prospectus supplement and any related free writing prospectus may also add, update or change information contained in this prospectus. You should carefully read this prospectus, the applicable prospectus supplement and any related free writing prospectus, as well as any documents incorporated by reference, before buying any of the securities being offered.

Our common stock is traded on the NASDAQ Global Market under the symbol **GEVO** . On April 30, 2013, the last reported sale price of our common stock on the NASDAQ Global Market was \$1.85. The applicable prospectus supplement will contain information, where applicable, as to any other listing, if any, on the NASDAQ Global Market or any securities market or other exchange of the securities covered by the applicable prospectus supplement.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the heading Risk Factors contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents that are incorporated by reference into this prospectus.

This prospectus may not be used to consummate a sale of any securities unless accompanied by a prospectus supplement.

The securities may be sold directly by us to investors, through agents designated from time to time or to or through underwriters or dealers, on a continuous or delayed basis. For additional information on the methods of sale, you should refer to the section entitled "Plan of Distribution" in this prospectus. If any agents or underwriters are involved in the sale of any securities with respect to which this prospectus is being delivered, the names of such agents or underwriters and any applicable fees, commissions, discounts and over-allotment options will be set forth in a prospectus supplement. The price to the public of such securities and the net proceeds that we expect to receive from such sale will also be set forth in a prospectus supplement.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is May 15, 2013.

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the Securities and Exchange Commission (the SEC) utilizing a shelf registration process. Under this shelf registration process, we may offer shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in units, in one or more offerings, up to a total dollar amount of \$250,000,000. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will contain more specific information about the terms of those securities. We may also authorize one or more free writing prospectuses to be provided to you that may contain material information relating to these offerings. We may also add or update in the prospectus supplement (and in any related free writing prospectus that we may authorize to be provided to you) any of the information contained in this prospectus or in the documents that we have incorporated by reference into this prospectus. We urge you to carefully read this prospectus, any applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading **Where You Can Find Additional Information**, before buying any of the securities being offered. **THIS PROSPECTUS MAY NOT BE USED TO CONSUMMATE A SALE OF SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.**

You should rely only on the information that we have provided or incorporated by reference in this prospectus, any applicable prospectus supplement and any related free writing prospectus that we may authorize to be provided to you. We have not authorized anyone to provide you with different information. No dealer, salesperson or other person is authorized to give any information or to represent anything not contained in this prospectus, any applicable prospectus supplement or any related free writing prospectus that we may authorize to be provided to you. You must not rely on any unauthorized information or representation. This prospectus is an offer to sell only the securities offered hereby, but only under circumstances and in jurisdictions where it is lawful to do so. You should assume that the information in this prospectus, any applicable prospectus supplement or any related free writing prospectus is accurate only as of the date on the front of the document and that any information we have incorporated by reference is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus, any applicable prospectus supplement or any related free writing prospectus, or any sale of a security.

This prospectus contains summaries of certain provisions contained in some of the documents described herein, but reference is made to the actual documents for complete information. All of the summaries are qualified in their entirety by the actual documents. Copies of some of the documents referred to herein have been filed, will be filed or will be incorporated by reference as exhibits to the registration statement of which this prospectus is a part, and you may obtain copies of those documents as described below under the heading **Where You Can Find Additional Information**.

CONVENTIONS THAT APPLY TO THIS PROSPECTUS

This prospectus contains estimates and other information concerning our target markets that are based on industry publications, surveys and forecasts, including those generated by SRI Consulting, a division of Access Intelligence, LLC, Chemical Market Associates, Inc., the US Energy Information Association (the EIA), the International Energy Agency (the IEA), the Renewable Fuels Association (the RFA) and Nexant, Inc. (Nexant). Certain target market sizes presented in this report have been calculated by us (as further described below) based on such information. This information involves a number of assumptions and limitations and you are cautioned not to give undue weight to this information. Please read the section of this prospectus entitled Cautionary Statement Regarding Forward-Looking Statements. The industry in which we operate is subject to a high degree of uncertainty and risk due to a variety of factors, including those described under the heading Risk Factors contained in the applicable prospectus supplement and any related free writing prospectus, and in our most recent annual report on Form 10-K and any subsequently filed quarterly reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. These and other factors could cause actual results to differ materially from those expressed in these publications, surveys and forecasts.

With respect to calculation of product market volumes:

product market volumes are provided solely to show the magnitude of the potential markets for isobutanol and the products derived from it. They are not intended to be projections of our actual isobutanol production or sales;

product market volume calculations for fuels markets are based on data available for the year 2010 (the most current data available from the IEA);

product market volume calculations for chemicals markets are based on data available for the year 2012 (the most current data available from Nexant); and

volume data with respect to target market sizes is derived from data included in various industry publications, surveys and forecasts generated by the EIA, the IEA and Nexant.

We have converted these market sizes into volumes of isobutanol as follows:

we calculated the size of the market for isobutanol as a gasoline blendstock and oxygenate by multiplying the world gasoline market volume by an estimated 12.5% by volume isobutanol blend ratio;

we calculated the size of the specialty chemicals markets by substituting volumes of isobutanol equivalent to the volume of products currently used to serve these markets;

we calculated the size of the petrochemicals and hydrocarbon fuels markets by calculating the amount of isobutanol that, if converted into the target products at theoretical yield, would be needed to fully serve these markets (in substitution for the volume of products currently used to serve these markets); and

for consistency in measurement, where necessary we converted all market sizes into gallons. Conversion into gallons for the fuels markets is based upon fuel densities identified by Air BP Ltd. and the American Petroleum Institute.

GEVO, INC.

Gevo, Inc. is a renewable chemicals and next generation biofuels company. Our overall strategy is to commercialize biobased alternatives to petroleum-based products using a combination of synthetic biology and chemical technology. In order to implement this strategy, we are taking a building block approach. Initially, we intend to produce and sell isobutanol from renewable feedstocks. Isobutanol is a four carbon alcohol that can be sold directly for use as a specialty chemical in the production of solvents, paints, and coatings or as a value-added fuel blendstock. Isobutanol can also be converted into butenes using straightforward dehydration chemistry deployed in the refining and petrochemicals industries today. The convertibility of isobutanol into butenes is important because butenes are primary hydrocarbon building blocks used in the production of lubricants, rubber, plastics, fibers, other polymers and hydrocarbon fuels. We believe that the products derived from isobutanol have potential applications in approximately 40% of the global petrochemicals market, representing a potential market for isobutanol of approximately 70 billion gallons per year (BGPY), and substantially all of the global hydrocarbon fuels market, representing a potential market for isobutanol of approximately 950 BGPY. When combined with a potential specialty chemical market for isobutanol of approximately 1.2 BGPY, we believe that the potential global market for isobutanol is greater than 1,000 BGPY.

We believe that products derived from our isobutanol will be drop-in products, which means that our customers will be able to replace petroleum-based intermediate products with isobutanol-based intermediate products without modification to their equipment or production processes. The final products produced from our isobutanol-based intermediate products will be chemically and visually identical to those produced from petroleum-based intermediate products, except that they will contain carbon from renewable sources. Customer interest in our isobutanol is primarily driven by our production route, which we believe will be cost-efficient, and our isobutanol's potential to serve as a cost-effective, environmentally sensitive alternative to the petroleum-based intermediate products that they currently use. We believe that at every step of the value chain, renewable products that are chemically identical to the incumbent petrochemical products will have lower market adoption hurdles in contrast with other bio-industrial products because the infrastructure and applications for such products already exist. In addition, we believe that products made from biobased isobutanol will be subject to less raw material cost volatility than the petroleum-based products in use today based on the historical cost volatility of agricultural feedstocks compared to oil.

In order to produce and sell isobutanol made from renewable sources, we have developed the Gevo Integrated Fermentation Technology® (GIFT®), an integrated technology platform for the efficient production and separation of isobutanol. GIFT® consists of two components, proprietary biocatalysts which convert sugars derived from multiple renewable feedstocks into isobutanol through fermentation, and a proprietary separation unit which is designed to continuously separate isobutanol from water during the fermentation process. We developed our technology platform to be compatible with the existing approximately 23 BGPY of global operating ethanol production capacity, as estimated by the RFA. GIFT® is designed to allow relatively low capital expenditure retrofits of existing ethanol facilities, enabling a rapid route to isobutanol production from the fermentation of renewable feedstocks. We believe that our production route will be cost-efficient and will enable rapid deployment of our technology platform and allow our isobutanol and the products produced from it to be economically competitive with many of the petroleum-based products used in the chemicals and fuels markets today.

We expect that the combination of our efficient proprietary technology, our marketing focus on providing drop-in substitutes for incumbent petrochemical products and our relatively low capital investment retrofit approach will mitigate many of the historical issues associated with the commercialization of renewable chemicals and fuels.

We were incorporated in Delaware in June 2005 under the name Methanotech, Inc. and filed an amendment to our certificate of incorporation changing our name to Gevo, Inc. on March 29, 2006. Our principal executive

offices are located at 345 Inverness Drive South, Building C, Suite 310, Englewood, CO 80112, and our telephone number is (303) 858-8358. We maintain an Internet website at www.gevo.com. Information contained in or accessible through our website does not constitute part of this prospectus.

Unless otherwise mentioned or unless the context requires otherwise, all references in this prospectus to we, us, our and Gev® refer to Gevo, Inc., a Delaware corporation, and its wholly owned or indirect subsidiaries, and their predecessors.

RISK FACTORS

Investing in our securities involves a high degree of risk. You should carefully review the risks and uncertainties described under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and under similar headings in the other documents, including our most recent annual report on Form 10-K, and any subsequent quarterly reports on Form 10-Q and current reports on Form 8-K incorporated herein by reference or filed by us after the date of this prospectus, that are incorporated by reference into this prospectus. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations and financial condition.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the documents incorporated by reference herein contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the Securities Act) and Section 21E of the Securities Exchange Act of 1934, as amended (the Exchange Act). These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performances or achievements expressed or implied by the forward-looking statements. Forward-looking statements may include, but are not limited to, statements relating to the achievement of advances in our technology platform, the success of our retrofit production model, the availability of suitable and cost-competitive feedstocks, our ability to gain market acceptance for our products, the expected cost-competitiveness and relative performance attributes of our isobutanol and the products derived from it, additional competition, the future price and volatility of petroleum and products derived from petroleum and statements regarding our intended uses of the proceeds of the securities offered hereby. In some cases, you can identify forward-looking statements by terminology such as may, will, should, expect, plan, and believe, estimate, predict, potential or continue, the negative of such terms or other comparable terminology.

Forward-looking statements reflect our current views about future events, are based on assumptions, and are subject to known and unknown risks and uncertainties. Many important factors could cause actual results or achievements to differ materially from the results, performance or achievements expressed in or implied by our forward-looking statements, including the factors listed below. Many of the factors that will determine future results, performance or achievements are beyond our ability to control or predict. The following are important factors, among others, that could cause actual results, performance or achievements to differ materially from the results or achievements reflected in our forward-looking statements:

our inability to successfully commercialize isobutanol and the products derived from it;

our inability to produce commercial quantities of isobutanol in a timely and economic manner;

unexpected delays, operational difficulties, cost-overruns or failures in the retrofit process;

our failure to successfully identify and acquire access to additional facilities suitable for efficient retrofitting;

our failure to market our isobutanol to potential customers;

fluctuations in the market price of petroleum;

fluctuations in the market price of corn and other feedstocks;

our inability to obtain regulatory approval for the use of our isobutanol in our target markets;

our failure to adequately protect our intellectual property, or the loss of some of our intellectual property rights through costly litigation or administrative proceedings;

our failure to transition our preliminary commitments into definitive supply and distribution agreements or to negotiate sufficient long-term supply agreements for our production of isobutanol; and

general economic conditions and inflation, interest rate movements and access to capital.

The forward-looking statements contained herein reflect our views and assumptions only as of the date such forward-looking statements are made. You should not place undue reliance on forward-looking statements. Except as required by law, we assume no responsibility for updating any forward-looking statements nor do we intend to do so. Our actual results, performance or achievements could differ materially from the results expressed in, or implied by, these forward-looking statements. The risks included in this section are not exhaustive. Additional factors that could cause actual results to differ materially from those described in the

forward-looking statements are set forth in under the heading "Risk Factors" contained in the applicable prospectus supplement and any related free writing prospectus, and in our most recent annual report on Form 10-K and any subsequently filed quarterly reports on Form 10-Q, as well as any amendments thereto reflected in subsequent filings with the SEC. You should carefully read both this prospectus, the applicable prospectus supplement and any related free writing prospectus, together with the information incorporated herein by reference as described under the heading

"Where You Can Find Additional Information," completely and with the understanding that our actual future results may be materially different from what we expect.

THE SECURITIES WE MAY OFFER

We may offer shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in units, with a total value of up to \$250,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of any offering. This prospectus provides you with a general description of the securities we may offer. Each time we offer a type or series of securities under this prospectus, we will provide a prospectus supplement that will describe the specific amounts, prices and other important terms of the securities, including, to the extent applicable:

designation or classification;

aggregate principal amount or aggregate offering price;

maturity, if applicable;

original issue discount, if any;

rates and times of payment of interest or dividends, if any;

redemption, conversion, exercise, exchange or sinking fund terms, if any;

ranking;

restrictive covenants, if any;

voting or other rights, if any;

conversion prices, if any; and

important U.S. federal income tax considerations.

The prospectus supplement and any related free writing prospectus that we may authorize to be provided to you may also add or update information contained in this prospectus or in documents we have incorporated by reference. However, no prospectus supplement or free writing prospectus will offer a security that is not registered and described in this prospectus at the time of the effectiveness of the registration statement of which this prospectus is a part.

THIS PROSPECTUS MAY NOT BE USED TO CONSUMMATE A SALE OF SECURITIES UNLESS IT IS ACCOMPANIED BY A PROSPECTUS SUPPLEMENT.

We may sell the securities directly to investors or to or through agents, underwriters or dealers. We, and our agents or underwriters, reserve the right to accept or reject all or part of any proposed purchase of securities. If we do offer securities to or through agents or underwriters, we will include in the applicable prospectus supplement:

the names of those agents or underwriters;

applicable fees, discounts and commissions to be paid to them;

details regarding over-allotment options, if any; and

the net proceeds to us.

Common Stock. We may issue shares of our common stock from time to time. The holders of common stock are entitled to one vote for each share held of record on all matters submitted to a vote of stockholders and do not have cumulative voting rights. Subject to preferences that may be applicable to any outstanding shares of preferred stock, the holders of common stock are entitled to receive ratably only those dividends as may be declared by our board of directors out of legally available funds. Upon our liquidation, dissolution or winding up, holders of our common stock are entitled to share ratably in all assets remaining after payment of liabilities and the liquidation preferences of any outstanding shares of preferred stock.

Preferred Stock. We may issue shares of our preferred stock from time to time, in one or more series. Under our amended and restated certificate of incorporation, our board of directors has the authority, without further action by stockholders, to designate up to 5,000,000 shares of preferred stock in one or more series and to fix the rights, preferences, privileges, qualifications and restrictions granted to or imposed upon the preferred stock, including dividend rights, conversion rights, voting rights, rights and terms of redemption, liquidation preferences and sinking fund terms, any or all of which may be greater than the rights of our common stock.

If we sell any series of preferred stock under this prospectus, we will fix the designations, powers, preferences and rights of such series of preferred stock, as well as the qualifications, limitations or restrictions thereon, in the certificate of designation relating to that series. We will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of any certificate of designation that describes the terms of the series of preferred stock we are offering before the issuance of the related series of preferred stock. We urge you to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the series of preferred stock being offered, as well as the complete certificate of designation that contains the terms of the applicable series of preferred stock.

Debt Securities. We may issue debt securities from time to time, in one or more series, as either senior secured, senior unsecured or subordinated debt or as senior secured, senior unsecured or subordinated convertible debt. The subordinated debt securities will be subordinate and junior in right of payment, to the extent and in the manner described in the instrument governing the debt, to all of our senior indebtedness. Convertible debt securities will be convertible into or exchangeable for our common stock or our other securities. Conversion may be mandatory or at your option and would be at prescribed conversion rates.

The debt securities will be issued under one or more indentures, which are contracts between us and a national banking association or other eligible party, as trustee. In this prospectus, we have summarized certain general features of the debt securities. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the series of debt securities being offered, as well as the complete indentures that contain the terms of the debt securities. Forms of indentures have been filed as exhibits to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

Warrants. We may issue warrants for the purchase of common stock, preferred stock and/or debt securities in one or more series. We may issue warrants independently or together with common stock, preferred stock and/or debt securities, and the warrants may be attached to or separate from these securities. In this prospectus, we have summarized certain general features of the warrants. We urge you, however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the particular series of warrants being offered, as well as the complete warrant agreements and warrant certificates that contain the terms of the warrants. We will file as an exhibit to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, forms of the warrant agreements and forms of warrant certificates containing the terms of the warrants being offered.

We will evidence each series of warrants by warrant certificates that we will issue. Warrants may be issued under an applicable warrant agreement that we enter into with a warrant agent. We will indicate the name and address of the warrant agent, if applicable, in the prospectus supplement relating to the particular series of warrants being offered.

Units. We may issue, in one or more series, units consisting of common stock, preferred stock, debt securities and/or warrants for the purchase of common stock, preferred stock and/or debt securities in any combination. In this prospectus, we have summarized certain general features of the units. We urge you,

however, to read the applicable prospectus supplement (and any free writing prospectus that we may authorize to be provided to you) related to the series of units being offered, as well as the complete unit agreement that contains the terms of the units. We will file as exhibits to the registration statement of which this prospectus is a part, or will incorporate by reference from reports that we file with the SEC, the form of unit agreement and any supplemental agreements that describe the terms of the series of units we are offering before the issuance of the related series of units.

We will evidence each series of units by unit certificates that we will issue. Units may be issued under a unit agreement that we enter into with a unit agent. We will indicate the name and address of the unit agent, if applicable, in the prospectus supplement relating to the particular series of units being offered.

RATIO OF EARNINGS TO FIXED CHARGES

The following summary is qualified by the more detailed information appearing in the computation table found in Exhibit 12.1 to the registration statement of which this prospectus is part and the historical financial statements, including the notes to those financial statements, incorporated by reference in this prospectus.

Our earnings are inadequate to cover fixed charges. The following table sets forth the dollar amount of the coverage deficiency for all periods (in thousands):

	Three Months Ended March 31,		Year Ended December 31,			
	2013	2012	2011	2010	2009	2008
Ratio of Earnings to Fixed Charges						
Deficiency of Earnings Available to Cover Fixed Charges	\$ (12,906)	\$ (62,044)	\$ (48,511)	\$ (40,112)	\$ (19,885)	\$ (14,542)

USE OF PROCEEDS

Except as described in any prospectus supplement or in any related free writing prospectus that we may authorize to be provided to you, we currently intend to use the net proceeds from the sale of the securities offered hereby to acquire access to additional ethanol facilities through direct acquisition, tolling arrangements or joint ventures and to retrofit those facilities, as well as our existing facilities, to produce isobutanol. A portion of the net proceeds from this offering may also be used for general corporate purposes, including, among other things, working capital requirements and potential repayment of indebtedness that may be outstanding at the time of any offering under this prospectus. Pending these uses, we expect to invest the net proceeds in demand deposit accounts or short-term, investment-grade securities.

DESCRIPTION OF CAPITAL STOCK

Authorized and Outstanding Capital Stock

Our authorized capital stock consists of 100,000,000 shares of common stock, par value \$0.01 per share, and 5,000,000 shares of preferred stock, par value \$0.01 per share, issuable in one or more series designated by our board of directors. As of April 30, 2013, there were 44,080,138 shares of common stock and no shares of preferred stock outstanding.

Common Stock

The holders of our common stock have one vote per share. Holders of common stock are not entitled to vote cumulatively for the election of directors. Generally, all matters to be voted on by stockholders must be approved by a majority, or, in the case of election of directors, by a plurality, of the votes cast at a meeting at which a quorum is present, voting together as a single class, subject to any voting rights granted to holders of any then outstanding preferred stock. Subject to preferences that may be applicable to any then outstanding preferred stock, holders of our common stock are entitled to participate equally in dividends when and as dividends may be declared by our board of directors out of funds legally available for the payment of dividends. In the event of our voluntary or involuntary liquidation, dissolution or winding up, the prior rights of our creditors and the liquidation preference of any preferred stock then outstanding must first be satisfied. The holders of common stock will be entitled to share in the remaining assets on a pro rata basis. No shares of common stock are subject to redemption or have redemptive rights to purchase additional shares of common stock.

Our common stock is listed on the NASDAQ Global Market under the symbol **GEVO** .

Preferred Stock

Our amended and restated certificate of incorporation provides that we may issue shares of preferred stock from time to time in one or more series. Our board of directors is authorized to fix the voting rights, if any, designations, powers, preferences, qualifications, limitations and restrictions thereof, applicable to the shares of each series of preferred stock. The board of directors may, without stockholder approval, issue preferred stock with voting and other rights that could adversely affect the voting power and other rights of the holders of our common stock, including the likelihood that such holders will receive dividend payments and payments upon liquidation, and could have anti-takeover effects, including preferred stock or rights to acquire preferred stock in connection with implementing a stockholder rights plan. The ability of the board of directors to issue preferred stock without stockholder approval could have the effect of delaying, deferring or preventing a change of control or the removal of our existing management. There are currently no shares of preferred stock outstanding.

Anti-Takeover Provisions

The provisions of the Delaware General Corporation Law (the **DGCL**), our amended and restated certificate of incorporation, and our amended and restated bylaws contain provisions that could discourage or make more difficult a change in control of Gevo®, including an acquisition of Gevo® by means of a tender offer, a proxy contest and removal of our incumbent officers and directors, without the support of our board of directors. A summary of these provisions follows.

Statutory Business Combination Provision

We are subject to Section 203 of the DGCL (**Section 203**), which, subject to certain exceptions, prohibits a Delaware corporation from engaging in any **business combination** with an **interested stockholder** for a period of three years

following the time that such stockholder became an interested stockholder, unless:

the board of directors of the corporation approves either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder, prior to the time the interested stockholder attained that status;

upon the closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested 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 outstanding, those shares owned by persons who are directors and also officers and 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

at or subsequent to such time, the business combination is approved by the board of directors 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.

With certain exceptions, an interested stockholder is a person or group who or which owns 15% or more of the corporation's outstanding voting stock (including any rights to acquire stock pursuant to an option, warrant, agreement, arrangement or understanding, or upon the exercise of conversion or exchange rights, and stock with respect to which the person has voting rights only), or is an affiliate or associate of the corporation and was the owner of 15% or more of such voting stock at any time within the previous three years.

In general, Section 203 defines a business combination to include:

any merger or consolidation involving the corporation and the interested stockholder;

any sale, transfer, pledge or other disposition of 10% or more of the assets of the corporation involving the interested stockholder;

subject to certain exceptions, any transaction that results in the issuance or transfer by the corporation of any stock of the corporation to the interested stockholder;

any transaction involving the corporation that has the effect of increasing the proportionate share of the stock of any class or series of the corporation beneficially owned by the interested stockholder; or

the receipt by the interested stockholder of the benefit of any loans, advances, guarantees, pledges or other financial benefits provided by or through the corporation.

A Delaware corporation may opt out of this provision with an express provision in its original certificate of incorporation or an express provision in its amended and restated certificate of incorporation or bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. However, Gevo® has not opted out of this provision. Section 203 could prohibit or delay mergers or other takeover or change-in-control attempts and, accordingly, may discourage attempts to acquire Gevo®.

Election and Removal of Directors

Our amended and restated certificate of incorporation provides for our board of directors to be divided into three classes, with staggered three-year terms. Only one class of directors is elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Because our stockholders do not have cumulative voting rights, our stockholders holding a majority of the shares of common stock

outstanding are able to elect all of our directors. Directors may be removed only with cause by the affirmative vote of the holders of at least a majority of the outstanding shares entitled to vote on such removal.

No Stockholder Action by Written Consent

Our amended and restated certificate of incorporation and our amended and restated bylaws provide that any action required or permitted to be taken by the holders of common stock at an annual or special meeting of stockholders must be effected at a duly called meeting and may not be taken or effected by written consent of the stockholders.

Stockholder Meetings

Under our amended and restated certificate of incorporation and our amended and restated bylaws, only the board of directors, acting pursuant to a resolution adopted by a majority of the directors then in office, may call a special meeting of the stockholders, and any business conducted at any special meeting will be limited to the purpose or purposes specified in the notice for such special meeting.

Requirements for Advance Notification of Stockholder Nominations and Proposals

In order for our stockholders to bring nominations or business before an annual meeting properly, they must comply with certain notice requirements as provided by our amended and restated bylaws. Typically, in order for such notices to be timely, they must be provided to us not earlier than the close of business on the 120th day prior to the one-year anniversary of the preceding year's annual meeting and not later than the close of business on the 90th day prior to the one-year anniversary of the preceding year's annual meeting. For such notices to be timely in the event the annual meeting is advanced more than 30 days prior to or delayed by more than 70 days after the one-year anniversary of the preceding year's annual meeting, notice must be provided to us not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such annual meeting or, if later, the 10th day following the day on which public announcement of the date of such meeting is first made.

Amendment of Charter Provisions

The affirmative vote of the holders of at least 66-2/3% of the voting power of all of the then-outstanding shares of our voting stock, voting together as a single class, is required to, among other things, alter, amend or repeal certain provisions of our amended and restated certificate of incorporation, including those related to the classification of our board of directors, the amendment of our bylaws and certificate of incorporation, restrictions against stockholder actions by written consent, the designated parties entitled to call a special meeting of the stockholders and the indemnification of officers and directors.

Our amended and restated bylaws may only be amended (or new bylaws adopted) by the board of directors or the affirmative vote of the holders of at least 66-2/3% of the voting power of all of the then-outstanding shares of our voting stock.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company. Its address is 6201 15th Avenue, Brooklyn, New York 11219 and its telephone number is (800) 937-5449. The transfer agent for any series of preferred stock that we may offer under this prospectus will be named and described in the prospectus supplement for that series.

DESCRIPTION OF DEBT SECURITIES

We may issue debt securities, in one or more series, as either senior or subordinated debt or as senior or subordinated convertible debt. While the terms we have summarized below will apply generally to any debt securities that we may offer under this prospectus, we will describe the particular terms of any debt securities that we may offer in more detail in the applicable prospectus supplement. The terms of any debt securities offered under a prospectus supplement may differ from the terms described below. Unless the context requires otherwise, whenever we refer to the indentures, we also are referring to any supplemental indentures that specify the terms of a particular series of debt securities.

We will issue the senior debt securities under the senior indenture that we will enter into with the trustee named in the senior indenture. We will issue the subordinated debt securities under the subordinated indenture that we will enter into with the trustee named in the subordinated indenture. The indentures will be qualified under the Trust Indenture Act of 1939. We use the term *debenture trustee* to refer to either the trustee under the senior indenture or the trustee under the subordinated indenture, as applicable. We have filed forms of indentures as exhibits to the registration statement of which this prospectus is a part, and supplemental indentures and forms of debt securities containing the terms of the debt securities being offered will be filed as exhibits to the registration statement of which this prospectus is a part or will be incorporated by reference from reports that we file with the SEC.

The following summaries of material provisions of the senior debt securities, the subordinated debt securities and the indentures are subject to, and qualified in their entirety by reference to, all of the provisions of the indenture applicable to a particular series of debt securities. We urge you to read the applicable prospectus supplements and any related free writing prospectuses related to the debt securities that we may offer under this prospectus, as well as the complete indentures that contain the terms of the debt securities. Except as we may otherwise indicate, the terms of the senior indenture and the subordinated indenture are identical.

General

We will describe in the applicable prospectus supplement the terms of the series of debt securities being offered, including:

the title;

the principal amount being offered, and if a series, the total amount authorized and the total amount outstanding;

any limit on the amount that may be issued;

whether or not we will issue the series of debt securities in global form, the terms and who the depository will be;

the maturity date;

whether and under what circumstances, if any, we will pay additional amounts on any debt securities held by a person who is not a U.S. person for tax purposes, and whether we can redeem the debt securities if we have to pay such additional amounts;

the annual interest rate, which may be fixed or variable, or the method for determining the rate and the date interest will begin to accrue, the dates interest will be payable and the regular record dates for interest payment dates or the method for determining such dates;

whether or not the debt securities will be secured or unsecured, and the terms of any secured debt;

the terms of the subordination of any series of subordinated debt;

the place where payments will be payable;

restrictions on transfer, sale or other assignment, if any;

our right, if any, to defer payment of interest and the maximum length of any such deferral period;

the date, if any, after which, and the price at which, we may, at our option, redeem the series of debt securities pursuant to any optional or provisional redemption provisions and the terms of those redemption provisions;

the date, if any, on which, and the price at which we are obligated, pursuant to any mandatory sinking fund or analogous fund provisions or otherwise, to redeem, or at the holder's option to purchase, the series of debt securities and the currency or currency unit in which the debt securities are payable;

whether the indenture will restrict our ability and/or the ability of our subsidiaries to:

incur additional indebtedness;

issue additional securities;

create liens;

pay dividends and make distributions in respect of our capital stock and/or the capital stock of our subsidiaries;

redeem capital stock;

make investments or other restricted payments;

sell, transfer or otherwise dispose of assets;

enter into sale-leaseback transactions;

engage in transactions with stockholders and affiliates;

issue or sell stock of our subsidiaries; or

effect a consolidation or merger;

whether the indenture will require us to maintain any interest coverage, fixed charge, cash flow-based, asset-based or other financial ratios;

information describing any book-entry features;

provisions for a sinking fund purchase or other analogous fund, if any;

the applicability of the provisions in the indenture on discharge;

whether the debt securities are to be offered at a price such that they will be deemed to be offered at an original issue discount as defined in paragraph (a) of Section 1273 of the Internal Revenue Code;

the denominations in which we will issue the series of debt securities, if other than denominations of \$1,000 and any integral multiple thereof;

the currency of payment of debt securities if other than U.S. dollars and the manner of determining the equivalent amount in U.S. dollars;

any other specific terms, preferences, rights or limitations of, or restrictions on, the debt securities, including any additional events of default or covenants provided with respect to the debt securities, and any terms that may be required by us or advisable under applicable laws or regulations; and

any other terms which shall not be inconsistent with the indentures.

The notes may be issued as original issue discount securities. An original issue discount security is a note, including any zero-coupon note, which:

is issued at a price lower than the amount payable upon its stated maturity; and

provides that upon redemption or acceleration of the maturity, an amount less than the amount payable upon the stated maturity, shall become due and payable.

United States federal income tax consequences applicable to notes sold at an original issue discount will be described in the applicable prospectus supplement. In addition, United States federal income tax or other consequences applicable to any notes which are denominated in a currency or currency unit other than United States dollars may be described in the applicable prospectus supplement.

Under the indentures, we will have the ability, in addition to the ability to issue notes with terms different from those of notes previously issued, without the consent of the holders, to reopen a previous issue of a series of notes and issue additional notes of that series, unless the reopening was restricted when the series was created, in an aggregate principal amount determined by us.

Conversion or Exchange Rights

We will set forth in the prospectus supplement the terms on which a series of debt securities may be convertible into or exchangeable for our common stock or our other securities. We will include provisions as to whether conversion or exchange is mandatory, at the option of the holder or at our option. We may include provisions pursuant to which the number of shares of our common stock or our other securities that the holders of the series of debt securities receive would be subject to adjustment.

Consolidation, Merger or Sale

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the indentures will not contain any covenant that restricts our ability to merge or consolidate, or sell, convey, transfer or otherwise dispose of all or substantially all of our assets. However, any successor to or acquirer of such assets must assume all of our obligations under the indentures or the debt securities, as appropriate. If the debt securities are convertible into or exchangeable for our other securities or securities of other entities, the person with whom we consolidate or merge or to whom we sell all of our property must make provisions for the conversion of the debt securities into securities that the holders of the debt securities would have received if they had converted the debt securities before the consolidation, merger or sale.

Events of Default Under the Indentures

Unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, the following are events of default under the indentures with respect to any series of debt securities that we may issue:

if we fail to pay interest when due and payable and our failure continues for 90 days and the time for payment has not been extended or deferred;

if we fail to pay the principal, premium or sinking fund payment, if any, when due and payable and the time for payment has not been extended or delayed;

if we fail to observe or perform any other covenant contained in the debt securities or the indentures, other than a covenant specifically relating to another series of debt securities, and our failure continues for 90 days after we receive notice from the debenture trustee or holders of at least 25% in aggregate principal amount of the outstanding debt securities of the applicable series;

if specified events of bankruptcy, insolvency or reorganization occur; and

any other event of default described in the applicable prospectus supplement.

If an event of default with respect to debt securities of any series occurs and is continuing, other than an event of default specified in the last bullet point above, the debenture trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series, by notice to us in writing, and to the debenture trustee if notice is given by such holders, may declare the unpaid principal of, premium, if any, and

accrued interest, if any, due and payable immediately. If an event of default specified in the last bullet point above occurs with respect to us, the principal amount of and accrued interest, if any, of each issue of debt securities then outstanding shall be due and payable without any notice or other action on the part of the debenture trustee or any holder.

The holders of a majority in principal amount of the outstanding debt securities of an affected series may waive any default or event of default with respect to the series and its consequences, except defaults or events of default regarding payment of principal, premium, if any, or interest, unless we have cured the default or event of default in accordance with the indenture. Any such waiver shall cure the default or event of default.

Subject to the terms of the applicable indenture, if an event of default under an indenture shall occur and be continuing, the debenture trustee will be under no obligation to exercise any of its rights or powers under such indenture at the request or direction of any of the holders of the applicable series of debt securities, unless such holders have offered the debenture trustee reasonable indemnity. The holders of a majority in principal amount of the outstanding debt securities of any series will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the debenture trustee, or exercising any trust or power conferred on the debenture trustee, with respect to the debt securities of that series, provided that:

the direction so given by the holders is not in conflict with any law or the applicable indenture; and

subject to its duties under the Trust Indenture Act of 1939, the debenture trustee need not take any action that might involve it in personal liability or might be unduly prejudicial to the holders not involved in the proceeding.

A holder of the debt securities of any series will have the right to institute a proceeding under an indenture or to appoint a receiver or trustee, or to seek other remedies only if:

the holder has given written notice to the debenture trustee of a continuing event of default with respect to that series;

the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series have made written request, and such holders have offered reasonable indemnity to the debenture trustee to institute the proceeding as trustee; and

the debenture trustee does not institute the proceeding, and does not receive from the holders of a majority in aggregate principal amount of the outstanding debt securities of that series other conflicting directions within 60 days after the notice, request and offer.

These limitations do not apply to a suit instituted by a holder of debt securities if we default in the payment of the principal, premium, if any, or accrued interest on, the debt securities.

We will periodically file statements with the debenture trustee regarding our compliance with specified covenants in the indentures.

Modification of Indenture; Waiver

We and the debenture trustee may change an indenture without the consent of any holders with respect to specific matters:

to fix any ambiguity, defect or inconsistency in the indenture;

to comply with the provisions described above under the heading Description of Debt Securities Consolidation, Merger or Sale;

to comply with any requirements of the SEC in connection with the qualification of any indenture under the Trust Indenture Act of 1939;

to add to, delete from or revise the conditions, limitations, and restrictions on the authorized amount, terms, or purposes of issue, authentication and delivery of debt securities, as set forth in such indenture;

to provide for the issuance of and establish the form and terms and conditions of the debt securities of any series as provided under the heading Description of Debt Securities General, to establish the form of any certifications required to be furnished pursuant to the terms of an indenture or any series of debt securities, or to add to the rights of the holders of any series of debt securities;

to evidence and provide for the acceptance of appointment hereunder by a successor trustee;

to provide for uncertificated debt securities in addition to or in place of certificated debt securities and to make all appropriate changes for such purpose;

to add to our covenants such new covenants, restrictions, conditions or provisions for the protection of the holders, and to make the occurrence, or the occurrence and the continuance, of a default in any such additional covenants, restrictions, conditions or provisions an event of default; or

to change anything that does not materially adversely affect the interests of any holder of debt securities of any series.

In addition, under the indentures, the rights of holders of a series of debt securities may be changed by us and the debenture trustee with the written consent of the holders of at least a majority in aggregate principal amount of the outstanding debt securities of each series that is affected. However, unless we provide otherwise in the prospectus supplement applicable to a particular series of debt securities, we and the debenture trustee may make the following changes only with the consent of each holder of any outstanding debt securities affected:

extending the fixed maturity of the series of debt securities;

reducing the principal amount, reducing the rate of or extending the time of payment of interest, or reducing any premium payable upon the redemption of any debt securities;

reducing the percentage of debt securities, the holders of which are required to consent to any amendment, supplement, modification or waiver of the applicable indenture or notes or for waiver of compliance with certain provisions of the applicable indenture or for waiver of certain defaults;.

changing any of our obligations to pay additional amounts;

reducing the amount of principal of an original issue discount security or any other note payable upon acceleration of the maturity thereof;

changing currency in which any note or any premium or interest is payable;

impairing the right to enforce any payment on or with respect to any note;