

Gastar Exploration Inc.
Form 424B5
February 11, 2014
Table of Contents

**Filed Pursuant to Rule 424(b)(5)
Registration Statement No. 333-174552**

PROSPECTUS SUPPLEMENT

(To Prospectus dated June 8, 2011)

86,840 Shares

Gastar Exploration Inc.

8.625% Series A Cumulative Preferred Securities

(Liquidation Preference \$25.00 per share)

This prospectus supplement relates to the offer and sale of up to 86,840 shares of our 8.625% Series A Cumulative Preferred Securities, par value \$0.01 per share, (Series A Preferred Securities) from time to time through MLV & Co. LLC, formerly McNicoll, Lewis & Vlak LLC (MLV), as our sales agent. These sales, if any, will be made in accordance with the terms of a sales agreement between MLV and us. Such sales agreement has been filed as an exhibit to our Current Report on Form 8-K, filed with the Securities and Exchange Commission (the SEC) on June 30, 2011. Such exhibit is incorporated herein by reference. Our certificate of incorporation authorizes us to issue up to 40,000,000 shares of preferred stock in one or more series on terms that may be determined at the time of issuance by our board of directors, 10,000,000 of which have been designated as shares of Series A Preferred Securities. As of February 10, 2014, 3,958,160 shares of Series A Preferred Securities were issued and outstanding.

Our Series A Preferred Securities are listed on the NYSE MKT LLC (NYSE MKT) under the symbol GST.PR.A. On February 10, 2014, the last reported sales price of our Series A Preferred Securities on the NYSE MKT was \$24.57 per share. Sales of shares of our Series A Preferred Securities, if any, by MLV will be made in privately negotiated transactions or in any method permitted by law deemed to be an at-the-market offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, at negotiated prices, at prices prevailing at the time of sale or at prices related to such prevailing market prices, including sales made directly on the NYSE MKT or sales made through a market maker other than on an exchange. MLV will make all sales using commercially reasonable efforts consistent with its normal sales and trading practices on mutually agreed upon terms between MLV and us. Under the terms of the sales agreement, MLV will be compensated in an amount ranging from 3% to 5% of the gross proceeds from the sales of shares of Series A Preferred Securities. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

You should read this prospectus supplement, particularly the Risk Factors beginning on page S-13 and the prospectus filed with our registration statement on Form S-3 (File No. 333-174552), and any information incorporated by reference therein carefully before you invest. We also encourage you to read the documents described in Where You Can Find More Information of this prospectus supplement for more information on us.

Dividends on the Series A Preferred Securities will generally be payable monthly in arrears on the last day of each calendar month. We anticipate setting the record date for each monthly dividend period on or about the fifteenth of every month with dividends for such monthly dividend period to be paid at the end of such month to such holders of record. Holders of Series A Preferred Securities will only be entitled to dividend payments for each monthly dividend period pursuant to which they are the holder of record as of the applicable record date. Accordingly, any shares of Series A Preferred Securities initially issued after the record date for a monthly dividend period (which is expected to be on or about the fifteenth of each monthly dividend period) will not be entitled to dividends for such monthly dividend period. Dividends will be in the amount of \$2.15625 per share each year, which is equivalent to 8.625% of the \$25.00 liquidation preference per share. If the Series A Preferred Securities, however, are not listed on a National Exchange, as defined in this prospectus supplement, for a total of at least 180 consecutive days or if we fail to pay cash dividends on the outstanding Series A Preferred Securities in full for any monthly dividend period within a quarterly period for a total of four consecutive or non-consecutive quarterly periods and such dividends remain accumulated, accrued and unpaid, subject to our right to remedy these matters as described in this prospectus supplement, investors will be entitled to receive cumulative cash dividends at the increased rate of 10.625% per annum of the \$25.00 liquidation preference per share (equivalent to \$2.65625 per year per share) as outlined in this prospectus supplement.

The Series A Preferred Securities will be subordinated to all of our existing and future debt and all future capital stock designated as senior to the Series A Preferred Securities. With respect to dividend and liquidation rights, our Series A Preferred Securities will rank senior to our common stock and pari passu with our outstanding 10.75% Series B Cumulative Preferred Stock (the Series B Preferred Stock).

Edgar Filing: Gastar Exploration Inc. - Form 424B5

Investors in the Series A Preferred Securities generally will have no voting rights other than with respect to the authorization or creation of shares ranking senior to the Series A Preferred Securities, matters directly impairing the rights of the holders and for certain share exchanges and other acquisitions. However, holders will have limited voting rights if the Series A Preferred Securities are not listed on a National Exchange, we fail to make a monthly dividend payment during a quarterly period for four or more consecutive or non-consecutive quarterly periods and under certain other circumstances, which are further described in this prospectus supplement under **Description of Series A Preferred Securities** **Voting Rights**.

We may not redeem the Series A Preferred Securities before June 23, 2014, except as described below. On or after June 23, 2014, we may, at our option, redeem the Series A Preferred Securities, in whole or in part, by paying \$25.00 per share, plus any accrued and unpaid dividends to the redemption date. If at any time a **Change of Ownership or Control**, as defined in this prospectus supplement, occurs, we (or the acquiring company) will have the option to redeem the Series A Preferred Securities, in whole but not in part, within 90 days after the date on which the Change of Ownership or Control has occurred at specified redemption amounts as described in this prospectus supplement. The Series A Preferred Securities have no stated maturity, will not be subject to any sinking fund or other mandatory redemption, and will not be convertible into any of our other securities.

Investing in the Series A Preferred Securities involves a high degree of risk. You should carefully consider the risks relating to an investment in the Series A Preferred Securities and each of the other risk factors described under Risk Factors beginning on page S-13 of this prospectus supplement, on page 2 of the accompanying prospectus and in our reports filed with the Securities and Exchange Commission, which are incorporated by reference herein, before you make an investment in our securities.

NEITHER THE SECURITIES AND EXCHANGE COMMISSION NOR ANY STATE SECURITIES COMMISSION HAS APPROVED OR DISAPPROVED OF THESE SECURITIES OR PASSED UPON THE ADEQUACY OR ACCURACY OF THIS PROSPECTUS SUPPLEMENT OR THE ACCOMPANYING PROSPECTUS. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

The date of this prospectus supplement is February 11, 2014.

Table of Contents

TABLE OF CONTENTS

	Page
Prospectus Supplement	
<u>About This Prospectus Supplement</u>	S-1
<u>Cautionary Note Regarding Forward-Looking Statements</u>	S-2
<u>Prospectus Supplement Summary</u>	S-5
<u>Risk Factors</u>	S-13
<u>Description of Series A Preferred Securities</u>	S-17
<u>Material U.S. Federal Income Tax Consequences</u>	S-26
<u>Use of Proceeds</u>	S-33
<u>Ratio of Earnings to Combined Fixed Charges and Preferred Stock Dividends</u>	S-34
<u>Plan of Distribution</u>	S-35
<u>Legal Matters</u>	S-36
<u>Experts</u>	S-36
<u>Where You Can Find More Information</u>	S-36

Prospectus

<u>Prospectus Summary</u>	1
<u>Risk Factors</u>	2
<u>Cautionary Statements Regarding Forward-Looking Statements</u>	3
<u>Use of Proceeds</u>	5
<u>Ratio of Earnings to Combined Fixed Charges and Preferred Dividends</u>	6
<u>Description of Preferred Securities</u>	7
<u>Description of Guarantee of Preferred Securities</u>	8
<u>Plan of Distribution</u>	9
<u>Legal Matters</u>	12
<u>Experts</u>	12
<u>Where You Can Find More Information</u>	12
<u>Disclosure of SEC Position on Indemnification for Securities Act Liabilities</u>	14

This prospectus supplement and the accompanying prospectus, including the exhibits and the documents incorporated herein by reference, can be accessed on the SEC website or at the SEC's offices identified in Where You Can Find More Information.

Table of Contents

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts – the first part is this prospectus supplement, which describes the specific terms of this offering of Series A Preferred Securities, and the second part is the accompanying prospectus, which provides more general information about us and the securities registered thereunder, some of which may not apply to this offering. This document also includes those documents and other information incorporated by reference in this prospectus supplement and the accompanying prospectus. This prospectus supplement and the accompanying prospectus are part of a shelf registration statement on Form S-3 (Registration No. 333-174552) that we filed with the SEC on May 27, 2011 as part of a shelf registration process and was declared effective by the SEC on June 8, 2011. Under the shelf registration process, we may offer to sell preferred securities of Gastar Exploration Inc. from time to time, in one or more offerings, up to \$200,000,000 in total aggregate offering price. Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined, including all documents and other information incorporated by referenced herein.

This prospectus supplement, the accompanying prospectus, and any free writing prospectus that we have authorized to be distributed to you in connection with this offering, and the documents and other information incorporated by reference herein and therein, include important information about us, the Series A Preferred Securities being offered hereby and other information you should know before investing in our securities. This prospectus supplement may supplement, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein, 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. We urge you to carefully read this prospectus supplement, including the Risk Factors, the accompanying prospectus, any free writing prospectus that we authorize to be distributed to you, the information incorporated by reference herein and therein (including the documents described in Where You Can Find More Information in both this prospectus supplement and the accompanying prospectus), and any additional information you may need to make your investment decision, before buying any of the securities being offered under this prospectus supplement.

In making your investment decision, you should rely only on the information contained or incorporated by reference in this prospectus supplement, the accompanying prospectus, and any free writing prospectus we have authorized to be distributed to you in connection with this offering. We have not authorized anyone to provide you with any other information. You should not rely on any unauthorized information or representation. You should assume that the information in this prospectus supplement, the accompanying prospectus and any free writing prospectus authorized to be distributed by us is accurate only as of the date on the front cover of the applicable document and that any information incorporated by reference in such documents is accurate only as of the date of the document incorporated by reference, regardless of the time of delivery of this prospectus supplement, the accompanying prospectus, any free writing prospectus or any sale of a security. Our business, assets, financial condition, results of operations and prospects may have changed since such dates.

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. We are not making any representation to you regarding the legality of an investment in Series A Preferred Securities by you under applicable law. You should consult with your own legal advisors as to the legal, tax, business, financial and related aspects of a purchase of the Series A Preferred Securities.

Table of Contents

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement contains or incorporates by reference 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). All statements other than statements of historical fact included or incorporated by reference into this prospectus supplement are forward-looking statements, including without limitation all statements regarding future plans, business objectives, strategies, expected future financial position or performance, expected future operational position or performance, budgets and projected costs, future competitive position or performance, expected future operational position or operations. In some cases, you can identify a forward-looking statement by terminology such as may, will, could, should, expect, plan, project, intend, anticipate, believe, estimate, predict, potential, pursue, or the negative of such terms or variations thereon, or other comparable terminology.

The forward-looking statements contained or incorporated by reference in this prospectus supplement are largely based on our expectations and beliefs concerning future developments and their potential effect on us, which reflect certain estimates and assumptions made by our management. These estimates and assumptions reflect our best judgment based on currently known market conditions, operating trends, and other factors. Forward-looking statements may include statements that relate to, among other things, our:

Financial position;

Business strategy and budgets;

Anticipated capital expenditures;

Drilling of wells, including the anticipated scheduling and results of such operations;

Natural gas, oil and natural gas liquids (NGLs) reserves;

Timing and amount of future production of natural gas, condensate, oil and NGLs;

Operating costs and other expenses;

Cash flow and anticipated liquidity;

Prospect development; and

Property acquisitions and sales.

Although we believe such estimates and assumptions to be reasonable, they are inherently uncertain and involve a number of risks and uncertainties that are beyond our control. As such, management's assumptions about future events may prove to be inaccurate. These cautionary statements qualify all forward-looking statements attributable to us or persons acting on our behalf. Management cautions all readers that the forward-looking statements contained or incorporated by reference in this prospectus supplement are not guarantees of future performance, and we cannot assure any reader that such statements will be realized or that the events and circumstances they describe will occur. Factors that could cause actual results to differ materially from those anticipated or implied in the forward-looking statements herein include, but are not limited to:

Our ability to integrate acquired assets with ours and to realize the anticipated benefits from such acquisitions;

The supply and demand for natural gas, condensate, oil and NGLs;

Low and/or declining prices for natural gas, condensate, oil and NGLs;

Price volatility of natural gas, condensate, oil and NGLs;

S-2

Table of Contents

Worldwide political and economic conditions and conditions in the energy market;

Our ability to raise capital to fund capital expenditures or repay or refinance debt upon maturity;

The ability and willingness of our current or potential counterparties, third-party operators or vendors to enter into transactions with us and/or fulfill their obligation to us;

Failure of our joint interest partners to fund any or all of their portion of any capital program;

The ability to find, acquire, market, develop and produce new natural gas and oil properties;

Uncertainties about the estimated quantities of natural gas and oil reserves and in the projection of future rates of production and timing of development expenditures of proved reserves;

Strength and financial resources of competitors;

Availability and cost of material and equipment, such as drilling rigs and transportation pipelines;

Availability and cost of processing and transportation;

Changes or advances in technology;

The risks associated with exploration, including cost overruns and the drilling of non-economic wells or dry wells, operating hazards inherent to the natural gas and oil business and down hole drilling and completion risks that are generally not recoverable from third parties or insurance;

Potential mechanical failure or under-performance of significant wells or pipeline mishaps;

Environmental risks;

Possible new legislative initiatives and regulatory changes potentially adversely impacting our business and industry, including, but not limited to, national healthcare, hydraulic fracturing, state and federal corporate income taxes, retroactive royalty or production tax regimes, changes in environmental regulations, environmental risks and liability under federal, state and local environmental laws and regulations;

Effects of the application of applicable laws and regulations, including changes in such regulations or the interpretation thereof;

Edgar Filing: Gastar Exploration Inc. - Form 424B5

Potential losses from pending or possible future claims, litigation or enforcement actions;

Potential defects in title to our properties or lease termination due to lack of activity or other disputes with mineral lease and royalty owners, whether regarding calculation and payment of royalties or otherwise;

The weather, including the occurrence of any adverse weather conditions and/or natural disasters affecting our business;

Our ability to find and retain skilled personnel; and

Any other factors that impact or could impact the exploration of natural gas or oil resources, including, but not limited to, the geology of a resource, the total amount and costs to develop recoverable reserves, legal title, regulatory, natural gas administration, marketing and operational factors relating to the extraction of natural gas and oil.

You should not unduly rely on the forward-looking statements contained or incorporated by reference in this prospectus supplement and the accompanying prospectus as they speak only as of the date of this prospectus supplement or the accompanying prospectus or the date of the document incorporated by reference herein and therein. Please see **Risk Factors** in this prospectus supplement, the accompanying prospectus and the

S-3

Table of Contents

documents incorporated by reference herein and therein for some of the important factors that could affect our financial performance or could cause actual results to differ materially from estimates contained in forward-looking statements.

Except as required by law, we undertake no obligation to update, revise or release any revisions to any forward-looking statement to reflect events or circumstances occurring after the date on which such statement is made or to reflect the occurrence of unanticipated events. New factors emerge from time to time, and it is not possible for us to predict all of these factors. Further, we cannot assess the impact of each such factor on our business or the extent to which any factor, or combination of factors, may cause actual results to be materially different from those contained in any forward-looking statement.

S-4

Table of Contents

PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights certain information about us, this offering, the Series A Preferred Securities and other information appearing elsewhere in this prospectus supplement, in the accompanying prospectus and in the documents we incorporate by reference. This summary is not complete and does not contain all of the information that you should consider before investing in our securities. To fully understand this offering and its consequences to you, you should carefully read this entire prospectus supplement, the accompanying prospectus and any free writing prospectus distributed by us, including the information contained under **Risk Factors** in this prospectus supplement beginning on page S-13 and the financial statements and other information incorporated by reference into this prospectus supplement and the accompanying prospectus, before making an investment decision.*

All references in this prospectus supplement to the Company, Gastar, we, us, and our or similar references refer to Gastar Exploration Inc. and its subsidiaries, unless otherwise stated or the context otherwise requires.

Our Business

We are an independent energy company engaged in the exploration, development and production of natural gas, condensate, oil and NGLs in the United States. Our principal business activities include the identification, acquisition, and subsequent exploration and development of natural gas and oil properties with an emphasis on unconventional reserves, such as shale resource plays. We are currently pursuing the development of liquids-rich natural gas in the Marcellus Shale and Utica Shale in West Virginia and are also in the early stages of exploring and developing the Hunton Limestone horizontal oil play in Oklahoma.

Recent Developments

Corporate Reorganization

On August 1, 2013, shareholders of Gastar Exploration Ltd., an Alberta, Canada corporation (**Parent Predecessor**), voted to approve a plan of arrangement under Section 193 of the Business Corporations Act (Alberta) pursuant to which, among other things, Parent Predecessor would be continued as if it had been incorporated under the laws of the State of Delaware (the **Delaware Migration**). On November 14, 2013, the Delaware Migration was consummated and Parent Predecessor became a Delaware corporation subject to the Delaware General Corporation Law and its common stock continued to be listed on the NYSE MKT under its previous symbol **GST**. In connection with the Delaware Migration, Parent Predecessor changed its name to Gastar Exploration, Inc. (**Gastar Parent**). Gastar Parent is deemed to be the successor issuer of Parent Predecessor pursuant to Rule 12g-3 of the Exchange Act.

On January 31, 2014, Gastar Parent entered into an Agreement and Plan of Merger (the **merger agreement**) pursuant to which Gastar Parent merged with and into Gastar Exploration USA, Inc., its direct subsidiary (**Gastar Survivor**) (the **Merger**), as part of a reorganization to eliminate Gastar Parent's holding company corporate structure. Pursuant to the merger agreement, shares of Gastar Parent's common stock were converted into the right to receive an equal number of shares of common stock of Gastar Survivor, which, together with its subsidiaries, own and continue to conduct Gastar's business in substantially the same manner as it was being conducted by Gastar Parent and its subsidiaries immediately prior to the Merger. In connection with the Merger, Gastar Survivor changed its name to **Gastar Exploration Inc.** and is deemed to be the successor issuer of Gastar Parent pursuant to Rule 12g-3 of the Exchange Act.

Table of Contents

Guarantee Agreement

As a result of the Merger, Gastar Parent's guarantee of the Series A Preferred Securities was terminated pursuant to the terms of the guarantee agreement, a copy of which was filed as Exhibit 10.1 to our Current Report on Form 8-K filed on June 23, 2011.

Corporate Information

We are a Delaware corporation with our executive offices located at 1331 Lamar Street, Suite 650, Houston, Texas 77010. Our telephone number is (713) 739-1800. We maintain a website at <http://www.gastar.com>. The information on our website is not part of this prospectus supplement, and you should rely only on the information contained in this prospectus supplement and the documents we incorporate by reference herein when making a decision as to whether to invest in shares of our Series A Preferred Securities.

Table of Contents

The Offering

The following is a brief summary of certain terms of the Series A Preferred Securities and this offering. For a more complete description of the terms of the Series A Preferred Securities, see Description of Series A Preferred Securities beginning on page S-17 of this prospectus supplement and Description of Preferred Securities beginning on page 7 of the accompanying prospectus.

Issuer	Gastar Exploration Inc.
Securities Offered	86,840 shares of 8.625% Series A Preferred Securities, par value \$0.01 per share. As of February 10, 2014, the Company had 3,958,160 shares of Series A Preferred Securities issued and outstanding.
Dividends	<p>Holders of the Series A Preferred Securities will be entitled to receive, when and as declared by the Gastar board of directors (the Gastar Board), out of funds legally available for the payment of dividends, cumulative cash dividends on the Series A Preferred Securities at a rate of 8.625% per annum of the \$25.00 liquidation preference per share (equivalent to \$2.15625 per annum per share).</p> <p>Under certain conditions relating to non-payment of dividends on the Series A Preferred Securities or if the Series A Preferred Securities are no longer listed on a National Exchange, the dividend rate on the Series A Preferred Securities may increase to 10.625% per annum, which is referred to as the Penalty Rate.</p> <p>Dividends on the Series A Preferred Securities will generally be payable monthly in arrears on the last day of each calendar month. We anticipate setting the record date for each monthly dividend period on or about the fifteenth of every month with dividends for such monthly dividend period to be paid at the end of such month of such holders of record. Holders of Series A Preferred Securities will only be entitled to dividend payments for each monthly dividend period pursuant to which they are the holder of record as of the applicable record date. Accordingly, any shares of Series A Preferred Securities initially issued after the record date for a monthly dividend period (which is expected to be on or about the fifteenth of each monthly dividend period) will not be entitled to dividends for such monthly dividend period.</p> <p>Dividends on the Series A Preferred Securities will accrue regardless of whether:</p> <ul style="list-style-type: none">the terms of any Senior Shares (as defined below) issued by Gastar or agreements of Gastar, including any documents governing Gastar's indebtedness, at any time prohibit the current payment of dividends;Gastar has earnings;there are funds legally available for the payment of such dividends; or

Table of Contents

such dividends are authorized by the Gastar Board.

All payments of dividends made to the holders of Series A Preferred Securities will be credited against the previously accrued dividends on such shares of Series A Preferred Securities. Gastar will credit any dividends paid on the Series A Preferred Securities first to the earliest accrued and unpaid dividend due.

Penalties as a Result of Failure to Maintain a Listing on a National Exchange

If we fail to maintain a listing of the Series A Preferred Securities on the New York Stock Exchange, the NYSE MKT or The NASDAQ Global, Global Select or Capital Market, or a comparable national exchange (each a National Exchange), for 180 consecutive days, then (i) the annual dividend rate on the Series A Preferred Securities will be increased to the Penalty Rate on the 181st day, and (ii) the holders of Series A Preferred Securities, voting separately as a class with holders of all other series of Parity Shares (as defined under Ranking below) upon which like voting rights have been conferred and are exercisable, will have the right to elect two directors to serve on the Gastar Board in addition to those directors then serving on such Board. Such increased dividend rate and director service will continue for so long the Series A Preferred Securities are not listed on a National Exchange.

The second amended and restated bylaws of Gastar provide that the number of directors on the Gastar Board shall be fixed from time to time by a majority of the Gastar Board and vacancies resulting from newly created directorships may be filled by a majority of the Gastar Board. The number of directors on the Gastar Board is currently fixed at five. In the event that the holders of Series A Preferred Securities and any other voting Parity Shares exercise any right to elect two directors to serve on the Gastar Board, the existing Gastar Board may, pursuant to the provisions of Gastar's bylaws, (i) increase the number of directors on the Gastar Board to up to fifteen directors to allow the directors elected by the holders of the common stock of Gastar or appointed by the existing Gastar Board to fill the newly created directorships to constitute at least a majority of the Gastar Board and (ii) fill those vacancies prior to any such election by the holders of Series A Preferred Securities and other voting Parity Shares.

Penalties as a Result of Failure to Pay Dividends

If, at any time, there is a dividend default because cash dividends on the outstanding Series A Preferred Securities are accrued but not paid in full for any monthly dividend period within a quarterly period for a total of four consecutive or non-consecutive quarterly periods, then, (i) the annual dividend rate on the Series A Preferred Securities will be increased to the Penalty Rate commencing on the first day after the dividend payment date on which such dividend default occurs; (ii) if the dividends are not paid in cash, then dividends on the Series A Preferred Securities, including all accrued but unpaid dividends, will

Table of Contents

be paid by issuing to the holders thereof: (a) if Gastar's common stock is then listed on a National Exchange and to the extent permitted under the rules of the National Exchange on which such shares are listed, registered common stock of Gastar (based on the weighted average daily trading price for the 10 business day period ending on the business day immediately preceding the payment) and cash in lieu of any fractional share or (b) if Gastar's common stock is not listed on a National Exchange, additional shares of Series A Preferred Securities with a liquidation value equal to the amount of the dividend and cash in lieu of any fractional share; and (iii) the holders of Series A Preferred Securities, voting separately as a class with holders of all other series of Parity Shares upon which like voting rights have been conferred and are exercisable, will have the right to elect two directors to serve on the Gastar Board, in addition to those directors then serving on such Board. Once all of the accumulated and unpaid dividends on the Series A Preferred Securities have been paid in full and cash dividends at the Penalty Rate have been paid in full for an additional two consecutive quarters, the dividend rate will be restored to the stated rate and the term of office of all directors so elected will terminate with the termination of such voting rights. The foregoing provisions will not be applicable unless there is again a failure to pay a monthly dividend during any future quarter.

The second amended and restated bylaws of Gastar provide that the number of directors on the Gastar Board shall be fixed from time to time by a majority of the Gastar Board and vacancies resulting from newly created directorships may be filled by a majority of the Gastar Board. The number of directors on the Gastar Board is currently fixed at five. In the event that the holders of Series A Preferred Securities and any other voting Parity Shares exercise any right to elect two directors to serve on the Gastar Board, the existing Gastar Board may, pursuant to the provisions of Gastar's bylaws, (i) increase the number of directors on the Gastar Board to up to fifteen directors to allow the directors elected by the holders of the common stock of Gastar or appointed by the existing Gastar Board to fill the newly created directorships to constitute at least a majority of the Gastar Board and (ii) fill those vacancies prior to any such election by the holders of Series A Preferred Securities and other voting Parity Shares.

Optional Redemption

Gastar may not redeem the Series A Preferred Securities prior to June 23, 2014 except pursuant to the special redemption upon a Change of Ownership or Control discussed below. On and after June 23, 2014, Gastar may redeem the Series A Preferred Securities for cash at Gastar's option, from time to time, in whole or in part, at a redemption price of \$25.00 per share, plus accrued and unpaid dividends (whether or not earned or declared) to the redemption date.

Table of Contents

Special Redemption upon Change of Ownership or Control

Following a Change of Ownership or Control of us by a person, entity or group, Gastar (or the acquiring entity) will have the option to redeem the Series A Preferred Securities, in whole but not in part, within 90 days after the date on which the Change of Ownership or Control has occurred, for cash at the following price per share, plus accrued and unpaid dividends (whether or not declared), up to the redemption date:

Redemption Date	Redemption Price
Prior to June 23, 2014	\$ 25.25
On or after June 23, 2014	\$ 25.00

To see how we define Change of Ownership or Control, please see Description of Series A Preferred Securities Redemption Special Redemption upon Change of Ownership or Control.

Ranking

The Series A Preferred Securities will rank: (i) senior to the common stock and any other equity securities that Gastar may issue in the future, the terms of which specifically provide that such equity securities rank junior to such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up, referred to as Junior Shares, (ii) equal to the Series B Preferred Stock and any shares of equity securities that Gastar may issue in the future, the terms of which specifically provide that such equity securities rank on par with such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up, referred to as Parity Shares, (iii) junior to all other equity securities issued by us, the terms of which specifically provide that such equity securities rank senior to such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up (any such creation would require the affirmative vote of the holders of at least two-thirds of the outstanding shares of Series A Preferred Securities), referred to as Senior Shares, and (iv) junior to all of Gastar's existing and future indebtedness.

As of February 10, 2014 Gastar had outstanding indebtedness of \$325.0 million, including \$325.0 million of secured indebtedness.

Liquidation Preference

If Gastar liquidates, dissolves or winds up its operations, the holders of the Series A Preferred Securities will have the right to receive \$25.00 per share, plus all accrued and unpaid dividends (whether or not earned or declared) to and including the date of payment, before any payments are made to the holders of Gastar's common stock and any other Junior Shares. The rights of the holders of the Series A Preferred Securities to receive the liquidation preference will be

Table of Contents

subject to the proportionate rights of holders of each other future series or class of Parity Shares and subordinate to the rights of Senior Shares.

No Maturity or Mandatory Redemption

The Series A Preferred Securities do not have any stated maturity redemption date and will not be subject to any sinking fund or mandatory redemption provisions except for redemption at Gastar's option (or the option of the acquiring entity) under some circumstances upon a Change of Ownership or Control as described above or on or after June 23, 2014.

Voting Rights

Holders of the Series A Preferred Securities will generally only be entitled to vote on the authorizing or creation of shares ranking senior to the Series A Preferred Securities, certain acquisitions and share exchange transactions and changes that would be materially adverse to the rights of holders of Series A Preferred Securities. However, if cash dividends on any outstanding Series A Preferred Securities have not been paid in full for any monthly dividend period for any four consecutive or non-consecutive quarterly periods, or if Gastar fails to maintain the listing of the Series A Preferred Securities on a National Exchange for at least 180 consecutive days after the Series A Preferred Securities becomes eligible for listing on a National Exchange, the holders of the Series A Preferred Securities, voting separately as a class with holders of all other series of Parity Shares upon which like voting rights have been conferred and are exercisable, will have the right to elect two directors to serve on the Gastar Board in addition to those directors then serving on the Gastar Board until such time as the Series A Preferred Securities becomes listed on a National Exchange or the dividend arrearage is eliminated.

Additionally, the affirmative consent of holders of at least 66 2/3% of the outstanding Series A Preferred Securities will be required for the issuance of any Senior Shares or for amendments to Gastar's certificate of incorporation by merger or otherwise that would affect adversely the rights of holders of the Series A Preferred Securities. For more information regarding the voting rights of the Series A Preferred Securities, please see Description of Series A Preferred Securities Voting Rights.

Material U.S. Federal Income Tax Consequences

The material U.S. federal income tax consequences of purchasing, owning and disposing of Series A Preferred Securities are described in Material U.S. Federal Income Tax Consequences beginning on page S-26 of this prospective supplement. You should consult your tax advisor with respect to the U.S. federal income tax consequences of owning the Series A Preferred Securities in light of your own particular situation and with respect to any tax consequences arising under the laws of any state, local, foreign or other taxing jurisdiction.

Table of Contents

Listing	Our Series A Preferred Securities are listed on the NYSE MKT under the symbol GST.PR.A.
Form	The Series A Preferred Securities will be issued and maintained in book-entry form registered in the name of the nominee of The Depository Trust Company, except under limited circumstances.
No Conversion Rights	The Series A Preferred Securities are not convertible into, or exchangeable for, any of Gastar's other property or securities or that of its subsidiaries.
Use of Proceeds	We estimate that, in the event that shares offered hereunder are sold at \$25.00 per share, the net proceeds from this offering will be approximately \$2.2 million, before deducting the sales commissions and estimated offering expenses payable by us. We intend to use the net proceeds from the sale of the securities offered by us under this prospectus supplement for general corporate purposes.
Risk Factors	Investing in the Series A Preferred Securities involves certain risks. You should carefully consider the information set forth in the section of this prospectus supplement titled "Risk Factors," in our reports filed with the SEC, which are incorporated by reference herein, and the other information included in or incorporated in this prospectus supplement, before deciding whether to invest in our Series A Preferred Securities.

Table of Contents

RISK FACTORS

An investment in our securities involves a high degree of risk. You should carefully consider the following risks and all of the other information included or incorporated by reference in this prospectus supplement, including but not limited to the risk factors included in the Company's Form 10-K for the fiscal year ended December 31, 2012, filed with the SEC on March 11, 2013, as amended by the Form 10-K/A filed with the SEC on April 29, 2013 and the Form 10-K/A filed with the SEC on October 24, 2013, and the accompanying prospectus before making an investment decision. Additional risks related to us and our securities may be included in our other filings with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act. In evaluating us, the factors described below should be considered carefully. The occurrence of one or more of these events could significantly and adversely affect our business, prospects, financial condition, results of operations and cash flows. The trading price of our Series A Preferred Securities could decline due to any of these risks, and you may lose all or part of your investment.

Risks Relating to This Offering

The Series A Preferred Securities are thinly traded and have no stated maturity date.

The shares of Series A Preferred Securities were listed for trading on the NYSE MKT under the symbol GST.PR.A on June 23, 2011 and are thinly traded on the NYSE MKT. Since the securities have no stated maturity date, investors seeking liquidity will be limited to selling their shares in the secondary market. An active trading market for the shares may not develop or, even if it develops, may not last, in which case the trading price of the shares could be adversely affected and your ability to transfer your shares of Series A Preferred Securities will be limited.

The market value of the Series A Preferred Securities could be adversely affected by various factors.

The trading price of the shares of Series A Preferred Securities may depend on many factors, including:

market liquidity;

prevailing interest rates;

the market for similar securities;

general economic conditions; and

our financial condition, performance and prospects.

For example, higher market interest rates could cause the market price of the Series A Preferred Securities to decrease.

Gastar could be prevented from paying cash dividends on the Series A Preferred Securities.

Although dividends on the Series A Preferred Securities are cumulative and arrearages will accrue until paid, you will only receive cash dividends on the Series A Preferred Securities if Gastar has funds legally available for the payment of dividends and such payment is not restricted or prohibited by law, the terms of any Senior Shares or the terms of any of its agreements, including the documents governing its indebtedness.

Under Delaware law, cash dividends on capital stock may only be paid from surplus or, if there is no surplus, from the corporation's net profits for the then-current or the preceding fiscal year. Unless Gastar operates profitably, its ability to pay cash dividends on the Series A Preferred Securities would require the availability of adequate surplus, which is defined as the excess, if any, of net assets (total assets less total liabilities) over capital. Gastar's business may not generate sufficient cash flow from operations to enable it to

Table of Contents

pay dividends on the Series A Preferred Securities when payable. Further, even if adequate surplus is available to pay cash dividends on the Series A Preferred Securities, Gastar may not have sufficient cash to pay dividends on the Series A Preferred Securities.

Gastar's revolving credit facility, which is guaranteed by Gastar's subsidiaries, contains covenants that prohibit Gastar from (i) paying cash dividends or dividends paid in equity interests if a default or an event of default exists at the time of, or would be caused by, such payment and (ii) paying any cash dividends due on the Series A Preferred Securities in excess of \$20 million in the aggregate each calendar year to the holders of Series A Preferred Securities and Series B Preferred Stock. As such, Gastar could become unable, on a temporary or permanent basis, to pay dividends, either in cash or in kind, on the shares of Series A Preferred Securities. Future debt, contractual covenants or arrangements that Gastar may enter into in the future may also restrict or prevent future dividend payments.

The payment of any future dividends will be determined by the Gastar Board in light of conditions then existing, including earnings, financial condition, capital requirements, restrictions in financing agreements, business conditions and other factors affecting us as a whole. Accordingly, there is no guarantee that we will be able to pay any dividends on the Series A Preferred Securities.

Your rights with respect to the payment of dividends are limited. In the event Gastar is unable to pay cash dividends, you may receive additional Series A Preferred Securities or shares of Gastar common stock.

Your rights with respect to the payment of dividends are limited. In the event Gastar is unable to pay cash dividends, the dividends will be paid in shares of additional Series A Preferred Securities or Gastar common stock. Although the payment of such equity interests is designed to be equivalent to the value of the cash dividend then owed, the value of any such equity interests issued in lieu of cash may not be sufficient to adequately compensate you for your investment. In the event Gastar were to pay dividends in additional Series A Preferred Securities or Gastar common stock rather than cash, the price of our Series A Preferred Securities may be depressed at such time. Additional issuances and sales of Series A Preferred Securities or Gastar common stock, or the perception that such issuances and sales could occur, may cause prevailing market prices for such securities to decline.

In order to issue shares of common stock of Gastar, such shares would need to be registered with and approved for listing on the NYSE MKT. There can be no assurance that Gastar would be successful in registering such shares on the NYSE MKT. Additionally, if listed on the NYSE MKT, our ability to pay dividends on the Series A Preferred Securities in shares of Gastar common stock would be limited by Section 713(a) of the NYSE MKT Company Guide (Section 713). Section 713 limits a listed company's ability to issue shares of common stock representing more than 20% of its outstanding shares immediately prior to such issuance, without shareholder approval, subject to certain exceptions.

The Series A Preferred Securities have not been rated and our payment obligations with respect to the shares of Series A Preferred Securities will be effectively subordinated to all of the existing and future debt of Gastar.

The Series A Preferred Securities have not been rated by any nationally recognized statistical rating organization. In addition, with respect to dividend rights and rights upon our liquidation, winding-up or dissolution, the Series A Preferred Securities will be subordinated to all of Gastar's existing and future debt and all future capital stock designated as senior to the Series A Preferred Securities. As of February 10, 2014, we had approximately \$325.0 million of outstanding indebtedness. We may incur additional indebtedness in the future to finance potential acquisitions or the development of new properties and the terms of the Series A Preferred Securities do not require us to obtain the approval of the holders of the Series A Preferred Securities prior to incurring additional indebtedness. As a result, our existing and future indebtedness may be subject to restrictive covenants or other provisions that may prevent or otherwise limit our ability to make dividend or liquidation payments on the Series A Preferred Securities. Upon our liquidation, our obligations to our creditors would rank

Table of Contents

senior to the Series A Preferred Securities and would be required to be paid before any payments could be made to holders of the Series A Preferred Securities.

Investors should not expect us to redeem the Series A Preferred Securities on the date the Series A Preferred Securities becomes redeemable by the Company or on any particular date afterwards.

The shares of Series A Preferred Securities have no maturity or mandatory redemption date and are not redeemable at the option of investors under any circumstances. By its terms, the Series A Preferred Securities may be redeemed by us at our option either in whole or in part at any time on or after June 23, 2014. Any decision we may make at any time to redeem the Series A Preferred Securities will depend upon, among other things, our evaluation of our capital position, including the composition of our stockholders' equity and general market conditions at that time.

Holders of Series A Preferred Securities have extremely limited voting rights.

Except as expressly stated in the certificate of designations governing the Series A Preferred Securities, as a holder of Series A Preferred Securities, you will not have any relative, participating, optional or other special voting rights and powers and your approval will not be required for the taking of any corporate action. For example, your approval would not be required for any merger or consolidation in which we are involved or sale of all or substantially all of our assets except to the extent that such transaction materially adversely changes the express powers, preferences, rights or privileges of the holders of Series A Preferred Securities. None of the provisions relating to the Series A Preferred Securities contains any provisions affording the holders of the Series A Preferred Securities protection in the event of a highly leveraged or other transaction, including a merger or the sale, lease or conveyance of all or substantially all of our assets or business, that might adversely affect the holders of the Series A Preferred Securities, so long as the terms and rights of the holders of Series A Preferred Securities are not materially and adversely changed. See "Description of the Series A Preferred Securities - Voting Rights" on page S-22 of this prospectus supplement.

The issuance of future offerings of preferred securities may adversely affect the value of the Series A Preferred Securities.

Gastar's certificate of incorporation currently authorizes the issuance of up to 40,000,000 shares of preferred securities in one or more series on terms that may be determined at the time of issuance by the Gastar Board. Upon the completion of the offering described in this prospectus supplement, Gastar may sell additional shares of Series A Preferred Securities on terms that may differ from those described in this prospectus supplement. Accordingly, Gastar may issue additional shares of Series A Preferred Securities, Series B Preferred Stock and/or other classes of preferred shares that would rank on parity or senior to the Series A Preferred Securities and the Series B Preferred Stock as to dividend rights or rights upon liquidation, winding up or dissolution. The issuance of additional preferred shares on parity with or, with the consent of the holders of the Series A Preferred Securities and the Series B Preferred Stock, senior to our Series A Preferred Securities and Series B Preferred Stock, would dilute the interests of the holders of Series A Preferred Securities and Series B Preferred Stock and any issuance of preferred securities that is senior to the Series A Preferred Securities and Series B Preferred Stock could affect Gastar's ability to pay dividends on, redeem or pay the liquidation preference on the Series A Preferred Securities.

You may be required to use other sources of funds to pay income taxes in respect of dividends received, or deemed to be received, on the Series A Preferred Securities in certain circumstances.

If we are required to pay dividends on the Series A Preferred Securities in additional shares of Series A Preferred Securities or in shares of our common stock and this stock is not marketable at such time, you will be required to satisfy your income tax liability with respect to such dividends from other sources. For additional information concerning these matters, see "Material U.S. Federal Income Tax Consequences" on page S-26 of this prospectus supplement.

Table of Contents

Corporate holders of the Series A Preferred Securities may be unable to use the dividends-received deduction.

Distributions paid to corporate U.S. holders of the Series A Preferred Securities may be eligible for the dividends-received deduction if we have current or accumulated earnings and profits, as determined for U.S. federal income tax purposes. As of the date of this prospectus supplement, Gastar does not believe that it has any accumulated earnings and profits for U.S. federal income tax purposes. Additionally, we may not have sufficient current earnings and profits during future fiscal years for the distributions on the Series A Preferred Securities to qualify as dividends for U.S. federal income tax purposes. If the distributions fail to qualify as dividends, corporate U.S. holders would be unable to use the dividends-received deduction. For additional information concerning these matters, see Material U.S. Federal Income Tax Consequences on page S-26 of this prospectus supplement.

Non-U.S. holders may be subject to U.S. income tax with respect to gain on disposition of their Series A Preferred Securities.

If Gastar is a U.S. real property holding corporation at any time within the five-year period preceding a disposition of Series A Preferred Securities by a non-U.S. holder or the holder's holding period of the stock disposed of, whichever period is shorter, such non-U.S. holder may be subject to U.S. federal income tax with respect to gain on such disposition. Gastar believes that it is a U.S. real property holding corporation. However, so long as shares of the Series A Preferred Securities are regularly traded on an established securities market, a non-U.S. holder will not be subject to U.S. federal income tax on the disposition of the Series A Preferred Securities if it holds and has held (during the shorter of the five-year period immediately preceding the date of disposition or the holder's holding period) not more than 5% of the total outstanding shares of the Series A Preferred Securities. For additional information concerning these matters, see Material U.S. Federal Income Tax Consequences on page S-26 of this prospectus supplement.

The Series A Preferred Securities are not convertible and purchasers may not realize a corresponding benefit if we prosper.

The Series A Preferred Securities are not convertible into Gastar's common stock and earn dividends at a fixed rate. Accordingly, the market value of the Series A Preferred Securities may depend on dividend and interest rates for other preferred securities, commercial paper and other investment alternatives and Gastar's actual and perceived ability to pay dividends on, and in the event of dissolution satisfy the liquidation preference with respect to, the Series A Preferred Securities. Moreover, Gastar's right to redeem the Series A Preferred Securities on or after June 23, 2014 or in the event of a change in control could impose a ceiling on its value.

Table of Contents

DESCRIPTION OF SERIES A PREFERRED SECURITIES

The terms of the Series A Preferred Securities are contained in a certificate of designation in our amended and restated certificate of incorporation. The following description is a summary of the material provisions of the Series A Preferred Securities and the certificate of designation. It does not purport to be complete. You are strongly encouraged to read the certificate of designation because it, and not this description, defines your rights as a holder of shares of Series A Preferred Securities. We included the certificate of designation on a Form 8-A that Gastar filed with the SEC on June 20, 2011, which is incorporated by reference into this prospectus supplement.

General

The Gastar Board is authorized to issue, from its authorized but unissued shares of preferred securities, one or more series of preferred securities, to establish from time to time the number of shares to be included in each such series, and to fix the designation and any preferences, conversion and other rights, voting powers, restrictions, limitations as to dividends, qualifications and terms and conditions of redemption of the shares of each such series. Pursuant to this authority, the Gastar Board has established the terms of the Series A Preferred Securities, which are described below.

When issued, the Series A Preferred Securities offered hereunder will be validly issued, fully paid and non-assessable. The holders of the Series A Preferred Securities will have no preemptive rights with respect to any of Gastar's common stock or any securities convertible into or carrying rights or options to purchase any such common stock. The Series A Preferred Securities will not be subject to any sinking fund or other obligation of Gastar to redeem or retire the Series A Preferred Securities, but Gastar may redeem the Series A Preferred Securities as described below under Redemption. Unless redeemed or repurchased by Gastar, the Series A Preferred Securities will have a perpetual term with no maturity.

Our shares of Series A Preferred Securities are listed on the NYSE MKT under the symbol GST.PR.A.

The Series A Preferred Securities will be issued and maintained in book-entry form registered in the name of the nominee, The Depository Trust Company, except in limited circumstances. See Book-Entry Procedures below.

The transfer agent, registrar and dividend disbursing agent for the Series A Preferred Securities will be American Stock Transfer & Trust Company, LLC.

Ranking

The Series A Preferred Securities will rank: (i) senior to all of Gastar's common stock and any other equity securities that it may issue in the future, the terms of which specifically provide that such equity securities rank junior to such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up, referred to as Junior Shares; (ii) equal to the Series B Preferred Securities and any shares of equity securities that Gastar may issue in the future, the terms of which specifically provide that such equity securities rank on par with such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up, referred to as Parity Shares; (iii) junior to all other equity securities issued by Gastar, the terms of which specifically provide that such equity securities rank senior to such Series A Preferred Securities, in each case with respect to payment of dividends and amounts upon liquidation, dissolution or winding up (any such creation would require the affirmative vote of the holders of at least two-thirds of the outstanding shares of Series A Preferred Securities), referred to as Senior Shares; and (iv) junior to all of Gastar's existing and future indebtedness.

Table of Contents

Dividends

Holders of the Series A Preferred Securities will be entitled to receive, when and as declared by the Gastar Board, out of funds legally available for the payment of dividends, cumulative cash dividends at the rate of 8.625% per annum of the \$25.00 per share liquidation preference, equivalent to \$2.15625 per annum per share.

With respect to monthly dividend periods, Gastar anticipates setting the record date for each such monthly dividend period on or about the fifteenth of every month with dividends for such monthly dividend period to be paid at the end of such month to such holders of record. Holders of Series A Preferred Securities will only be entitled to dividend payments for each monthly dividend period pursuant to which they are the holder of record as of the applicable record date. Accordingly, any shares of Series A Preferred Securities initially issued after the record date for a monthly dividend period (which is expected to be on or about the fifteenth of each monthly dividend period) will not be entitled to dividends for such monthly dividend period. Dividends will generally be payable monthly in arrears on the last day of each calendar month; provided, that if such day falls on a national holiday or a weekend, such dividends will be due and payable on the next business day following such weekend or national holiday. Gastar will pay dividends to holders of record as they appear in Gastar's stockholder records at the close of business on the applicable record date, which will be the 10th day preceding the applicable payment date, or such other date Gastar establishes no less than 10 days and no more than 30 days preceding the payment date.

Gastar will not declare or pay or set aside for payment any dividend on the shares of Series A Preferred Securities if the terms of any Senior Shares or any of its agreement, including documents relating to its indebtedness, prohibit that declaration, payment or setting aside of funds or provide that the declaration, payment or setting aside of funds is a breach of or a default under that agreement, or if the declaration, payment or setting aside of funds is restricted or prohibited by law. Gastar's revolving credit facility contains covenants that prohibit the Gastar entities from (i) paying cash dividends or dividends paid in equity interests if a default or an event of default exists at the time of, or would be caused by, such payment and (ii) paying any cash dividends in excess of \$20 million in the aggregate each calendar year to the holders of Series A Preferred Securities and Series B Preferred Stock. As such, Gastar could become unable, on a temporary or permanent basis, to pay cash dividends on the shares of Series A Preferred Securities. In addition, future debt, contractual covenants or arrangements Gastar may enter into may restrict or prevent future dividend payments. The payment of any future dividends will be determined by the Gastar Board in light of conditions then existing, including earnings, financial condition, capital requirements, restrictions in financing agreements, business conditions and other factors affecting us as a whole.

Notwithstanding the foregoing, however, dividends on the shares of Series A Preferred Securities will accrue regardless of whether: (i) the terms of Gastar's Senior Shares or its agreements, including documents relating to its indebtedness, at any time prohibit the current payment of dividends; (ii) Gastar has earnings; (iii) there are funds legally available for the payment of such dividends; or (iv) such dividends are declared by the Gastar Board. Except as otherwise provided, accrued but unpaid distributions on the shares of Series A Preferred Securities will not bear interest, and holders of the shares of Series A Preferred Securities will not be entitled to any distributions in excess of full cumulative distributions as described above. All dividends on the shares of Series A Preferred Securities will be credited to the previously accrued dividends on the shares of Series A Preferred Securities. Gastar will credit any dividends paid on the shares of Series A Preferred Securities first to the earliest accrued and unpaid dividend due.

Gastar may not declare or pay any dividends, or set aside any funds for the payment of dividends, on shares of common stock or other Junior Shares, or redeem, purchase or otherwise acquire shares of common stock or other Junior Shares, unless Gastar also has declared and either paid or set aside for payment the full cumulative dividends on the shares of Series A Preferred Securities for all past dividend periods.

If Gastar does not declare and either pay or set aside for payment the full cumulative dividends on the shares of Series A Preferred Securities and all Parity Shares, the amount which Gastar has declared will be allocated pro

Table of Contents

rata to the shares of Series A Preferred Securities and to each Parity Share so that the amount declared for each share of Series A Preferred Securities and for each Parity Share is proportionate to the accrued and unpaid distributions on those shares.

Failure to Make Dividend Payments

If Gastar has committed a dividend default by failing to pay the accrued cash dividends on the outstanding Series A Preferred Securities in full for any monthly dividend period within a quarterly period for a total of four consecutive or non-consecutive quarterly periods, then (i) the annual dividend rate on the Series A Preferred Securities will be increased to 10.625% per annum (the Penalty Rate), commencing on the first day after the dividend payment date on which such dividend default occurs; (ii) if dividends are not paid in cash, dividends on the Series A Preferred Securities, including all accrued but unpaid dividends, will be paid by issuing to the holders thereof: (a) if Gastar's common stock is then listed on a National Exchange and to the extent permitted under the rules of the National Exchange on which such shares are listed, registered common stock of Gastar (based on the weighted average daily trading price for the 10 business day period ending on the business day immediately preceding the payment) and cash in lieu of any fractional share or (b) if Gastar's common stock is not listed on a National Exchange, additional shares of Series A Preferred Securities with a liquidation value equal to the amount of the dividend and cash in lieu of any fractional share; and (iii) the holders of the Series A Preferred Securities will have the voting rights described below. See Description of Series A Preferred Securities Voting Rights. Once all accumulated and unpaid dividends have been paid in full and cash dividends at the Penalty Rate have been paid in full for an additional two consecutive quarters, the dividend rate will be restored to the stated rate and the foregoing provisions will not be applicable, unless Gastar again fails to pay any monthly dividend for any future quarter.

Failure to Maintain National Market Listing of Series A Preferred Securities

If Gastar fails to maintain the listing of the Series A Preferred Securities on a National Exchange for at least 180 consecutive days, then: (i) the annual dividend rate on the Series A Preferred Securities will be increased to 10.625% per annum commencing on the 181st day, in a period of 181 consecutive days, that the Series A Preferred Securities are not listed on a National Exchange, and (ii) holders of Series A Preferred Securities will have the voting rights described below. See Voting Rights. When the Series A Preferred Securities are once again listed on a National Exchange, the dividend rate will be restored to the Stated Rate and the foregoing provisions will not be applicable, unless the Series A Preferred Securities are again no longer listed on a National Exchange.

Liquidation Preference

Upon any voluntary or involuntary liquidation, dissolution or winding up of Gastar's affairs, then, before any distribution or payment shall be made to the holders of any common stock or any other class or series of Junior Shares in the distribution of assets upon any liquidation, dissolution or winding up of Gastar, the holders of Series A Preferred Securities shall be entitled to receive out of its assets legally available for distribution to stockholders, liquidating distributions in the amount of the liquidation preference, or \$25.00 per share, plus an amount equal to all dividends (whether or not earned or declared) accrued and unpaid thereon. After payment of the full amount of the liquidating distributions to which they are entitled, the holders of Series A Preferred Securities will have no right or claim to any of Gastar's remaining assets. In the event that, upon any such voluntary or involuntary liquidation, dissolution or winding up, Gastar's available assets are insufficient to pay the amount of the liquidating distributions on all outstanding Series A Preferred Securities and the corresponding amounts payable on all Senior Shares and Parity Shares, then after payment of the liquidating distribution on all outstanding Senior Shares, the holders of the Series A Preferred Securities and all other such classes or series of Parity Shares shall share ratably in any such distribution of assets in proportion to the full liquidating distributions to which they would otherwise be respectively entitled. For such purposes, the consolidation or

Table of Contents

merger of Gastar with or into any other entity, or the sale, lease or conveyance of all or substantially all of Gastar's property or business, or a statutory share exchange shall not be deemed to constitute a voluntary or involuntary liquidation, dissolution or winding up of Gastar.

The certificate of designation for the Series A Preferred Securities will not contain any provision requiring funds to be set aside to protect the liquidation preference of the Series A Preferred Securities.

Redemption

General

Gastar may not redeem the Series A Preferred Securities prior to June 23, 2014, except following a "Change of Ownership or Control" as described below in this prospectus supplement. On or after June 23, 2014, Gastar, at its option, upon not less than 30 nor more than 60 days written notice, may redeem the Series A Preferred Securities, in whole or in part, at any time or from time to time, for cash at a redemption price of \$25.00 per share, plus all accrued and unpaid dividends thereon to the date fixed for redemption, without interest. If fewer than all of the outstanding Series A Preferred Securities are to be redeemed, the number of shares to be redeemed will be determined by Gastar and such shares may be redeemed pro rata from the holders of record of such shares in proportion to the number of such shares held by such holders (with adjustments to avoid redemption of fractional shares) or by lot in an equitable manner determined by Gastar.

Unless full cumulative dividends on all Series A Preferred Securities and all Parity Shares shall have been or contemporaneously are declared and paid or declared and a sum sufficient for the payment thereof set apart for payment for all past dividend periods and the then current dividend period, no Series A Preferred Securities or Parity Shares shall be redeemed unless all outstanding Series A Preferred Securities and Parity Shares are simultaneously redeemed; provided, however, that the foregoing shall not prevent the purchase or acquisition of Series A Preferred Securities or Parity Shares pursuant to a purchase or exchange offer made on the same terms to holders of all outstanding Series A Preferred Securities and Parity Shares. Furthermore, unless full cumulative dividends on all outstanding Series A Preferred Securities and Parity Shares have been or contemporaneously are declared and paid or declared and a sum sufficient for the payment thereof set apart for payment for all past dividend periods and the then current dividend period, Gastar shall not purchase or otherwise acquire directly or indirectly any Series A Preferred Securities or Parity Shares (except by conversion into or exchange for Gastar's Junior Shares and Parity Shares).

From and after the redemption date (unless Gastar defaults in payment of the redemption price), all dividends will cease to accumulate on the Series A Preferred Securities, such shares shall no longer be deemed to be outstanding, and all of your rights as a holder of shares of Series A Preferred Securities will terminate with respect to such shares, except the right to receive the redemption price and all accrued and unpaid dividends up to the redemption date.

Procedures

Notice of redemption will be mailed at least 30 days but not more than 60 days before the redemption date to each holder of record of Series A Preferred Securities at the address shown on Gastar's share transfer books. Each notice shall state: (i) the redemption date, (ii) the number of shares of Series A Preferred Securities to be redeemed, (iii) the redemption price of \$25.00 per share of Series A Preferred Securities, plus any accrued and unpaid dividends through the date of redemption, (iv) the place or places where any certificates issued for Series A Preferred Securities other than through the DTC book entry described below, are to be surrendered for payment of the redemption price, (v) that dividends on the Series A Preferred Securities will cease to accrue on such redemption date, and (vi) any other information required by law or by the applicable rules of any exchange upon which the Series A Preferred Securities may be listed or admitted for trading. If fewer than all outstanding shares of Series A Preferred Securities are to be redeemed, the notice mailed to each such holder thereof shall

Table of Contents

also specify the number of shares of Series A Preferred Securities to be redeemed from each such holder.

At Gastar's election, on or prior to the redemption date, Gastar may irrevocably deposit the redemption price (including accrued and unpaid dividends) of the Series A Preferred Securities so called for redemption in trust for the holders thereof with a bank or trust company, in which case the notice to holders of the Series A Preferred Securities will (i) state the date of such deposit, (ii) specify the office of such bank or trust company as the place of payment of the redemption price, and (iii) require such holders to surrender any certificates issued for Series A Preferred Securities other than through the DTC book entry described below at such place on or about the date fixed in such redemption notice (which may not be later than such redemption date) against payment of the redemption price (including all accrued and unpaid dividends to the redemption date). Any interest or other earnings earned on the redemption price (including all accrued and unpaid dividends) deposited with a bank or trust company will be paid to Gastar. Any monies so deposited that remain unclaimed by the holders of the Series A Preferred Securities at the end of six months after the redemption date will be returned to Gastar by such bank or trust company. If Gastar makes such a deposit, shares of the Series A Preferred Securities shall not be considered outstanding for purposes of voting or determining shares entitled to vote on any matter on or after the date of such deposit.

On or after the date fixed for redemption, each holder of shares of Series A Preferred Securities that holds a certificate other than through the DTC book entry described below must present and surrender each certificate representing his Series A Preferred Securities to Gastar at the place designated in the applicable notice and thereupon the redemption price of such shares will be paid to or on the order of the person whose name appears on such certificate representing the Series A Preferred Securities as the owner thereof, each surrendered certificate will be canceled and the shares will be retired and restored to the status of undesignated, authorized shares of preferred securities.

If Gastar redeems any shares of Series A Preferred Securities and if the redemption date occurs after a dividend record date and on or prior to the related dividend payment date, the dividend payable on such dividend payment date with respect to such shares called for redemption shall be payable on such dividend payment date to the holders of record at the close of business on such dividend record date, and shall not be payable as part of the redemption price for such shares.

Special Redemption upon Change of Ownership or Control

Following a Change of Ownership or Control of Gastar by a person, entity or group, Gastar (or the acquiring entity) will have the option to redeem the Series A Preferred Securities, in whole but not in part, within 90 days after the date on which the Change of Ownership or Control has occurred for cash, at the following price per share, plus accrued and unpaid dividends (whether or not earned or declared), up to the redemption date:

Redemption Date	Redemption Price
Prior to June 23, 2014	\$ 25.25
On or after June 23, 2014	\$ 25.00

A Change of Ownership or Control shall be deemed to have occurred on the date: (i) that a person or group (within the meaning of Sections 13(d) and 14(d) of the Exchange Act) becomes the beneficial owner (as defined in Rules 13d-3 and 13d-5 under the Exchange Act, except that a person or group shall be deemed to have beneficial ownership of all shares of voting stock that such person or group has the right to acquire regardless of when such right is first exercisable), directly or indirectly, of voting stock representing more than 50% of the total voting power of the voting stock of Gastar; (ii) that Gastar sells, transfers or otherwise disposes of all or substantially all of its assets; or (iii) of the consummation of a merger or share exchange of Gastar with another entity where the applicable entity's stockholders immediately prior to the merger or share exchange would not beneficially own, immediately after the merger or share exchange, shares representing 50% or more of

Table of Contents

the outstanding voting stock of the entity issuing cash or securities in the merger or share exchange (without consideration of the rights of any class of stock to elect directors by a separate group vote), or where members of the Board of Directors of the applicable entity immediately prior to the merger or share exchange would not immediately after the merger or share exchange constitute a majority of the board of directors of the corporation issuing cash or securities in the merger or share exchange. Voting stock shall mean stock of any class or kind having the power to vote generally for the election of directors.

Voting Rights

Except as indicated below, the holders of Series A Preferred Securities will have no voting rights.

If and whenever either (i) cash dividends on any outstanding Series A Preferred Securities have not been paid in full for any monthly dividend period for any four consecutive or non-consecutive quarterly periods, whether or not earned or declared, or (ii) the Series A Preferred Securities are not listed on a National Exchange, for a period of at least 180 consecutive days, the number of directors then constituting the Gastar Board will increase by at least two (such exact number to be fixed by the Gastar Board in accordance with the Bylaws), and the holders of Series A Preferred Securities, voting together as a class with the holders of any other Parity Shares upon which like voting rights have been conferred (any such other series, being Voting Preferred Shares), will have the right to elect two additional directors to serve on the Gastar Board. Such directors shall be nominated for election at any annual meeting of stockholders, or special meeting held in place thereof, or a special meeting of the holders of Series A Preferred Securities and such Voting Preferred Shares called at the request of any holder of record of the Series A Preferred Securities or by a holder of such Voting Preferred Shares and at each subsequent annual meeting of stockholders, all in accordance with the bylaws of Gastar, until Gastar has paid all accumulated accrued and unpaid dividends on the Series A Preferred Securities in full and has paid accrued dividends for all monthly dividend periods during the two most recently completed quarterly dividend periods in full in cash, or until the Series A Preferred Securities are again subject to a national market listing, as applicable. The term of office of all directors so elected will terminate with the termination of such voting rights.

The second amended and restated bylaws of Gastar provide that the number of directors on the Gastar Board shall be fixed from time to time by a majority of the Gastar Board and vacancies resulting from newly created directorships may be filled by a majority of the Gastar Board. The number of directors on the Gastar Board is currently fixed at five. In the event that the holders of Series A Preferred Securities and any other voting Parity Shares exercise any right to elect two directors to serve on the Gastar Board, the existing Gastar Board may, pursuant to the provisions of Gastar's bylaws, (i) increase the number of directors on the Gastar Board to up to fifteen directors to allow the directors elected by the holders of the common stock of Gastar or appointed by the existing Gastar Board to fill the newly created directorships to constitute at least a majority of the Gastar Board and (ii) fill those vacancies prior to any such election by the holders of Series A Preferred Securities and other voting Parity Shares.

The approval of two-thirds of the outstanding Series A Preferred Securities and all other series of Voting Preferred Shares similarly affected, voting as a single class, is required in order to: (i) amend Gastar's certificate of incorporation if such amendment materially and adversely affects the rights, preferences or voting power of the holders of the Series A Preferred Securities or the Voting Preferred Shares; (ii) enter into a statutory share exchange that affects the Series A Preferred Securities, consolidate with or merge into another entity, or permit another entity to consolidate with or merge into Gastar, unless in each such case each share of Series A Preferred Securities remains outstanding without a material adverse change to its terms and rights or is converted into or exchanged for preferred securities of the surviving entity having preferences, rights, voting powers, restrictions, limitations as to dividends, qualifications and terms or conditions of redemption thereof identical to that of the Series A Preferred Securities (except for changes that do not materially and adversely affect the holders of the Series A Preferred Securities); or (iii) authorize, reclassify, create, or increase the authorized amount of any class of stock having rights senior to the Series A Preferred Securities with respect to the payment of dividends or amounts upon liquidation, dissolution or winding up.

Table of Contents

For avoidance of doubt, Gastar may create additional classes of Parity Shares and shares ranking junior to the Series A Preferred Securities as to dividends or upon liquidation (each, referred to as Junior Shares) and increase the authorized number of Series A Preferred Securities and any other series of Parity Shares and Junior Shares without the consent of any holder of Series A Preferred Securities.

The foregoing voting provisions will not apply if, at or prior to the time when the act with respect to which such vote would otherwise be required will be effected, all outstanding Series A Preferred Securities have been redeemed in accordance with their terms or called for redemption in accordance with their terms and sufficient funds shall have been deposited in trust to effect such redemption.

Except as provided above, the holders of Series A Preferred Securities are not entitled to vote on any merger or consolidation involving Gastar or a sale of all or substantially all of Gastar's assets or any amendment to Gastar's certificate of incorporation.

Conversion

The shares of Series A Preferred Securities are not convertible into or exchangeable for any of Gastar's other property or securities or that of its subsidiaries.

Information Rights

During any period in which we are not subject to Section 13 or 15(d) of the Exchange Act and any shares of Series A Preferred Securities are outstanding, we will: (i) transmit by mail to all holders of Series A Preferred Securities, as their names and addresses appear in Gastar's record books, and without cost to such holders, copies of the annual reports and quarterly reports that we would have been required to file with the SEC pursuant to Section 13 or 15(d) of the Exchange Act if we were subject to such sections (other than any exhibits that would have been required); and (ii) promptly upon written request, supply copies of such reports to any prospective holder of Series A Preferred Securities. We will mail the reports to the holders of Series A Preferred Securities within 15 days after the respective dates by which we would have been required to file the reports with the SEC if we were subject to Section 13 or 15(d) of the Exchange Act.

Book-Entry Procedures

The Depository Trust Company (DTC) will act as securities depository for the Series A Preferred Securities. Gastar will issue one or more fully registered global securities certificates in the name of DTC's nominee, Cede & Co. These certificates will represent the total aggregate number of shares of Series A Preferred Securities. Gastar will deposit these certificates with DTC or a custodian appointed by DTC. Gastar will not issue certificates to you for the Series A Preferred Securities that you purchase, unless DTC's services are discontinued as described below.

Title to book-entry interests in the Series A Preferred Securities will pass by book-entry registration of the transfer within the records of DTC, as the case may be, in accordance with their respective procedures. Book-entry interests in the securities may be transferred within DTC in accordance with procedures established for these purposes by DTC.

Each person owning a beneficial interest in the Series A Preferred Securities must rely on the procedures of DTC and the participant through which such person owns its interest to exercise its rights as a holder of the Series A Preferred Securities.

DTC has advised us that it is a limited-purpose trust company organized under the New York Banking Law, a member of the Federal Reserve System, a clearing corporation within the meaning of the New York Uniform Commercial Code, and a clearing agency registered under the provisions of Section 17A of the Exchange Act. DTC holds securities that its participants, referred to as Direct Participants, deposit with DTC. DTC also facilitates the settlement among Direct Participants of securities transactions, such as transfers and pledges, in

Table of Contents

deposited securities through electronic computerized book-entry changes in Direct Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is owned by a number of its Direct Participants and by the New York Stock Exchange, Inc., the NYSE MKT, and the Financial Industry Regulatory Authority, Inc. Access to the DTC system is also available to others such as securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly, referred to as Indirect Participants. The rules applicable to DTC and its Direct and Indirect Participants are on file with the SEC.

When you purchase the Series A Preferred Securities within the DTC system, the purchase must be made by or through a Direct Participant. The Direct Participant will receive a credit for the Series A Preferred Securities on DTC's records. You, as the actual owner of the Series A Preferred Securities, are the beneficial owner. Your beneficial ownership interest will be recorded on the Direct and Indirect Participants' records, but DTC will have no knowledge of your individual ownership. DTC's records reflect only the identity of the Direct Participants to whose accounts Series A Preferred Securities are credited.

You will not receive written confirmation from DTC of your purchase. The Direct or Indirect Participants through whom you purchased the Series A Preferred Securities should send you written confirmations providing details of your transactions, as well as periodic statements of your holdings. The Direct and Indirect Participants are responsible for keeping an accurate account of the holdings of their customers like you.

Transfers of ownership interests held through Direct and Indirect Participants will be accomplished by entries on the books of Direct and Indirect Participants acting on behalf of the beneficial owners.

The laws of some states may require that specified purchasers of securities take physical delivery of the Series A Preferred Securities in definitive form. These laws may impair the ability to transfer beneficial interests in the global certificates representing the Series A Preferred Securities.

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to beneficial owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

Gastar understands that, under DTC's existing practices, in the event that Gastar requests any action of holders, or an owner of a beneficial interest in a global security such as you desires to take any action which a holder is entitled to take under Gastar's certificate of incorporation, as amended or supplemented, DTC would authorize the Direct Participants holding the relevant shares to take such action, and those Direct Participants and any Indirect Participants would authorize beneficial owners owning through those Direct and Indirect Participants to take such action or would otherwise act upon the instructions of beneficial owners owning through them.

Redemption notices will be sent to Cede & Co. If less than all of the outstanding shares of Series A Preferred Securities are being redeemed, DTC will reduce each Direct Participant's holdings of Series A Preferred Securities in accordance with its procedures.

In those instances where a vote is required, neither DTC nor Cede & Co. itself will consent or vote with respect to the Series A Preferred Securities. Under its usual procedures, DTC would mail an omnibus proxy to Gastar as soon as possible after the record date. The omnibus proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Series A Preferred Securities are credited on the record date, which are identified in a listing attached to the omnibus proxy.

Dividends on the Series A Preferred Securities will be made directly to DTC. DTC's practice is to credit participants' accounts on the relevant payment date in accordance with their respective holdings shown on DTC's records unless DTC has reason to believe that it will not receive payment on that payment date.

Table of Contents

Payments by Direct and Indirect Participants to beneficial owners such as you will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in street name. These payments will be the responsibility of the participant and not of DTC, Gastar or any agent of Gastar.

DTC may discontinue providing its services as securities depository with respect to the Series A Preferred Securities at any time by giving reasonable notice to Gastar. Additionally, Gastar may decide to discontinue the book-entry only system of transfers with respect to the Series A Preferred Securities. In that event, Gastar will print and deliver certificates in fully registered form for the Series A Preferred Securities. If DTC notifies Gastar that it is unwilling to continue as securities depository, or if it is unable to continue or ceases to be a clearing agency registered under the Exchange Act and a successor depository is not appointed by Gastar within 90 days after receiving such notice or becoming aware that DTC is no longer so registered, Gastar will issue the Series A Preferred Securities in definitive form, at Gastar's expense, upon registration of transfer of, or in exchange for, such global security.

According to DTC, the foregoing information with respect to DTC has been provided to the financial community for informational purposes only and is not intended to serve as a representation, warranty or contract modification of any kind.

Initial settlement for the Series A Preferred Securities will be made in immediately available funds. Secondary market trading between DTC's participants will occur in the ordinary way in accordance with DTC's rules and will be settled in immediately available funds using DTC's Same-Day Funds Settlement System.

Direct Registration System

Our Series A Preferred Securities are registered in book-entry form through the Direct Registration System (the "DRS"). The DRS is a system administered by DTC pursuant to which the depository may register the ownership of uncertificated shares, which ownership shall be evidenced by periodic statements issued by the depository to the Series A Preferred Securities holders entitled thereto. This direct registration form of ownership allows investors to have securities registered in their names without requiring the issuance of a physical stock certificate, eliminates the need for you to safeguard and store certificates and permits the electronic transfer of securities to effect transactions without transferring physical certificates.

Table of Contents

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES

The following discussion summarizes the material U.S. federal income tax consequences that may be applicable to U.S. holders and non-U.S. holders (each as defined below) with respect to the purchase, ownership, and disposition of the Series A Preferred Securities offered by this prospectus supplement. This discussion only applies to purchasers who purchase and hold the Series A Preferred Securities as a capital asset within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the Code) (generally property held for investment). This discussion does not describe all of the tax consequences that may be relevant to each purchaser or holder of Series A Preferred Securities in light of its particular circumstances.

This discussion is based upon provisions of the Code, Treasury regulations, rulings and judicial decisions as of the date hereof. These authorities may change, perhaps retroactively, or may be subject to different interpretations which could result in U.S. federal income tax consequences different from those summarized below. We cannot assure you that the Internal Revenue Service (IRS) will not challenge one or more of the tax consequences described in this discussion, and we have not obtained, nor do we intend to obtain, a ruling from the IRS with respect to the U.S. federal tax consequences of acquiring, holding or disposing of the Series A Preferred Securities. This discussion does not address all aspects of U.S. federal income taxes (such as the alternative minimum tax) and does not describe any foreign, state, local or other tax considerations (including estate or gift tax considerations) that may be relevant to a purchaser or holder of Series A Preferred Securities in light of their particular circumstances. In addition, this discussion does not describe the U.S. federal income tax consequences applicable to a purchaser or a holder of Series A Preferred Securities who is subject to special treatment under U.S. federal income tax laws (including, a corporation that accumulates earnings to avoid U.S. federal income tax, a pass-through entity or an investor in a pass-through entity, a tax-exempt entity, pension or other employee benefit plans, financial institutions or broker-dealers, persons holding Series A Preferred Securities as part of a hedging or conversion transaction or straddle, a person subject to the alternative minimum tax, an insurance company, former U.S. citizens, or former long-term U.S. residents). We cannot assure you that a change in law will not significantly alter the tax considerations that we describe in this discussion.

If a partnership (or any other entity treated as a partnership for U.S. federal income tax purposes) holds Series A Preferred Securities, the U.S. federal income tax treatment of a partner of that partnership generally will depend upon the status of the partner and the activities of the partnership. If you are a partnership or a partner of a partnership holding the Series A Preferred Securities, you should consult your tax advisors as to the particular U.S. federal income tax consequences of holding and disposing of the Series A Preferred Securities.

THIS DISCUSSION CANNOT BE USED BY ANY HOLDER FOR THE PURPOSE OF AVOIDING FEDERAL TAX PENALTIES THAT MAY BE IMPOSED ON SUCH HOLDER. IF YOU ARE CONSIDERING THE PURCHASE OF OUR SERIES A PREFERRED SECURITIES, YOU SHOULD CONSULT YOUR OWN TAX ADVISORS CONCERNING THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF PURCHASING, OWNING AND DISPOSING OF OUR SERIES A PREFERRED SECURITIES IN LIGHT OF YOUR PARTICULAR CIRCUMSTANCES AND ANY CONSEQUENCES ARISING UNDER THE LAWS OF APPLICABLE STATE, LOCAL OR FOREIGN TAXING JURISDICTIONS. YOU SHOULD ALSO CONSULT WITH YOUR TAX ADVISORS CONCERNING ANY POSSIBLE ENACTMENT OF LEGISLATION THAT WOULD AFFECT YOUR INVESTMENT IN OUR SERIES A PREFERRED SECURITIES IN YOUR PARTICULAR CIRCUMSTANCES.

U.S. holders

Subject to the qualifications set forth above, the following discussion summarizes the material U.S. federal income tax consequences of the purchase, ownership and disposition of the Series A Preferred Securities by U.S. holders. You are a U.S. holder if you are a beneficial owner of our Series A Preferred Securities and you are for U.S. federal income tax purposes:

an individual citizen or resident of the United States;

Table of Contents

a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;

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

a trust if it (a) is subject to the primary supervision of a court within the United States and one or more United States persons have the authority to control all substantial decisions of the trust or (b) has a valid election in effect under applicable United States Treasury regulations to be treated as a United States person.

Distributions in General. Distributions made with respect to the Series A Preferred Securities will be treated as dividends to the extent of our current and accumulated earnings and profits as determined under the Code. Any portion of a distribution that exceeds our current and accumulated earnings and profits will first be applied to reduce a U.S. holder's tax basis in the Series A Preferred Securities, and the excess will be treated as gain from the disposition of the Series A Preferred Securities, the tax treatment of which is discussed below in the first paragraph under *Disposition of Series A Preferred Securities, Including Redemptions*. As of the date of this prospectus supplement, Gastar does not believe it has any accumulated earnings and profits for U.S. Federal income tax purposes. Additionally, Gastar may not have sufficient current earnings and profits in 2014 or in future fiscal years for the distributions on the Series A Preferred Securities to qualify as dividends for U.S. federal income tax purposes.

Distributions treated as dividends that are received by individual holders of Series A Preferred Securities currently will be subject to a reduced maximum tax rate of 20% if such dividends are treated as *qualified dividend income* for U.S. federal income tax purposes. The rate reduction does not apply to dividends received to the extent that the individual stockholder elects to treat the dividends as *investment income*, which may be offset against investment expenses. Furthermore, the rate reduction does not apply to dividends that are paid to individual stockholders with respect to the Series A Preferred Securities that are held for 60 days or less during the 121-day period beginning on the date which is 60 days before the date on which the Series A Preferred Securities become ex-dividend. Individual stockholders should consult their own tax advisors regarding the implications of these rules in light of their particular circumstances.

Distributions treated as dividends that are received by corporations generally will be eligible for the dividends-received deduction. Generally, this deduction is allowed if the underlying stock is held for at least 46 days during the 91 day period beginning on the date 45 days before the ex-dividend date of the stock, and for cumulative preferred securities with an arrearage of dividends, the holding period is at least 91 days during the 181 day period beginning on the date 90 days before the ex-dividend date of the stock. As described above, we may not have sufficient earnings and profits in 2014 or in future years to cause distributions on our Series A Preferred Securities to be treated as dividends for U.S. federal income tax purposes. Each domestic corporate holder of Series A Preferred Securities is urged to consult with its tax advisors with respect to the eligibility for and amount of any dividends received deduction.

Distributions of Additional Shares of Common Stock or Series A Preferred Securities. As discussed under the *Description of Series A Preferred Securities - Dividends - Failure to Make Dividend Payments*, the certificate of designation governing the Series A Preferred Securities requires Gastar to pay dividends on Series A Preferred Securities *in-kind* in shares of Gastar common stock or additional shares of Series A Preferred Securities in certain circumstances. Such dividend distributions of shares of common stock or additional shares of Series A Preferred Securities will be treated as taxable distributions in the same manner as cash distributions. The amount of the distribution and basis of the shares of common stock or Series A Preferred Securities received will be equal to the fair market value of such shares on the distribution date.

Constructive Distributions. Additionally, if the Series A Preferred Securities are issued at a price less than the redemption price, because Gastar may call for the redemption of the Series A Preferred Securities under certain circumstances, the holder of the Series A Preferred Securities may be treated as receiving periodically a constructive distribution of additional stock on the Series A Preferred Securities. Under Treasury regulations,

Table of Contents

such constructive distribution would be required if, based on all of the facts and circumstances as of the issue date, the redemption pursuant to Gastar's right to redeem the Series A Preferred Securities is more likely than not to occur. The Treasury regulations provide that an issuer's right to redeem will not be treated as more likely than not to occur if: (i) the issuer and holder of the stock are not related within the meaning of Section 267(b) or Section 707(b) of the Code (substituting 20% for the phrase 50%); (ii) there are no plans, arrangements, or agreements that effectively require or are intended to compel the issuer to redeem the stock; and (iii) exercise of the right to redeem would not reduce the yield on the stock determined using principles applicable to the determination of original issue discount under Sections 1272 of the Code and the Treasury regulations under Sections 1271 through 1275 of the Code. The fact that a redemption right is not described in the preceding sentence does not mean that an issuer's right to redeem is more likely than not to occur and the issuer's right to redeem must still be tested under all the facts and circumstances to determine if it is more likely than not to occur. Gastar believes that its right to call for the redemption of the Series A Preferred Securities should not be treated as more likely than not to occur applying the foregoing test, and as a result, no constructive distribution should be required.

Disposition of Series A Preferred Securities, Including Redemptions. Upon any sale, exchange, redemption (except as discussed below), or other disposition of the Series A Preferred Securities, a U.S. holder generally will recognize capital gain or loss equal to the difference between the amount realized by the U.S. holder on any sale, exchange, redemption (except as discussed below), or other disposition, and the U.S. holder's adjusted tax basis in the Series A Preferred Securities. Such capital gain or loss will be long-term capital gain or loss if the U.S. holder's holding period for the Series A Preferred Securities is longer than one year. A U.S. holder should consult its own tax advisors with respect to applicable tax rates and netting rules for capital gains and losses. Certain limitations exist on the deduction of capital losses by both corporate and non-corporate taxpayers.

A redemption of shares of the Series A Preferred Securities will generally be a taxable event. If the redemption is treated as a sale or exchange, instead of a dividend, a U.S. holder generally will recognize capital gain or loss (which will be long-term capital gain or loss, if the U.S. holder's holding period for such Series A Preferred Securities exceeds one year at the time of the redemption), equal to the difference between the amount realized by the U.S. holder and the U.S. holder's adjusted tax basis in the Series A Preferred Securities redeemed, except to the extent that any cash received is attributable to any accrued but unpaid dividends on the Series A Preferred Securities, which generally will be subject to the rules discussed above in U.S. holder: Distributions in General. A payment made in redemption of Series A Preferred Securities may be treated as a distribution, rather than as payment in exchange for the Series A Preferred Securities, unless the redemption:

is not essentially equivalent to a dividend with respect to a U.S. holder under Section 302(b)(1) of the Code;

is a substantially disproportionate redemption with respect to a U.S. holder under Section 302(b)(2) of the Code;

results in a complete redemption of a U.S. holder's stock interest in Gastar under Section 302(b)(3) of the Code; or

is a redemption of stock held by a non-corporate shareholder, where such redemption results in a partial liquidation of Gastar under Section 302(b)(4) of the Code.

In determining whether any of these tests has been met, a U.S. holder must take into account not only shares of Series A Preferred Securities and our common stock that the U.S. holder actually owns, but also shares that the U.S. holder constructively owns within the meaning of Section 318 of the Code.

A redemption payment will be treated as not essentially equivalent to a dividend if it results in a meaningful reduction in a U.S. holder's aggregate stock interest in Gastar, which will depend on the U.S. holder's particular facts and circumstances at such time.

Table of Contents

Satisfaction of the complete redemption and substantially disproportionate exceptions is dependent upon compliance with the objective tests set forth in Section 302(b)(3) and Section 302(b)(2) of the Code. A redemption will result in a complete redemption if either all of our stock actually and constructively owned by a U.S. holder is redeemed or all of our stock actually owned by the U.S. holder is redeemed and the U.S. holder is eligible to waive, and the U.S. holder effectively waives, the attribution of our stock constructively owned by the U.S. holder in accordance with the procedures described in Section 302(c)(2) of Code. A redemption does not qualify for the substantially disproportionate exception if the stock redeemed is only non-voting stock, and for this purpose, stock which does not have voting rights until the occurrence of an event is not voting stock until the occurrence of the specified event. Accordingly, any redemption of Series A Preferred Securities will likely not qualify for this exception because the voting rights are limited as provided in the *Description of Series A Preferred Securities Voting Rights*.

For purposes of the redemption from non-corporate shareholders in a partial liquidation test, a distribution will be treated as in partial liquidation of a corporation if the distribution is not essentially equivalent to a dividend (determined at the corporate level rather than the shareholder level) and the distribution is pursuant to a plan and occurs within the taxable year in which the plan was adopted or within the succeeding taxable year. For these purposes, a distribution is generally not essentially equivalent to a dividend if the distribution results in a corporate contraction. The determination of what constitutes a corporate contraction is generally factual in nature and has been interpreted under case law to include the termination of a business or line of businesses.

If none of the foregoing tests result in sale or exchange treatment upon redemption, and instead a redemption payment is treated as a distribution, the rules discussed above in *U.S. holder Distributions in General* apply.

Because of the factual nature of the foregoing tests, each U.S. holder of Series A Preferred Securities should consult its own tax advisor to determine whether a payment made in redemption of Series A Preferred Securities will be treated as a dividend or as payment in exchange for the Series A Preferred Securities.

Information Reporting and Backup Withholding. Information reporting generally will apply to payments of dividends on the Series A Preferred Securities and to certain payments of proceeds on the sale or other disposition of the Series A Preferred Securities. Certain non-corporate U.S. holders may be subject to U.S. backup withholding (currently at a rate of 28%) on payments of dividends on the Series A Preferred Securities and certain payments of proceeds on the sale or other disposition of the Series A Preferred Securities unless the beneficial owner of such Series A Preferred Securities furnishes the payor or its agent with a taxpayer identification number, certified under penalties of perjury, and certain other information, or otherwise establishes, in the manner prescribed by law, an exemption from backup withholding.

U.S. backup withholding is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a credit against a U.S. holder's U.S. federal income tax liability, which may entitle the U.S. holder to a refund, provided the U.S. holder timely furnishes the required information to the IRS.

Additional Tax on Net Investment Income. An additional 3.8% Medicare tax is imposed on the net investment income of certain U.S. citizens and resident aliens and on the undistributed net investment income of certain estates and trusts. For individual U.S. stockholders, the additional Medicare Tax applies to the lesser of (i) net investment income, or (ii) the excess of modified adjusted gross income over \$200,000 (\$250,000 if married and filing jointly or \$125,000 if married and filing separately). Net investment income generally equals a stockholder's gross investment income reduced by the deductions that are allocable to such income. Investment income generally includes passive income such as interest, dividends and capital gains. U.S. holders are urged to consult their own tax advisors regarding this additional tax.

Table of Contents**Non-U.S. holders**

Subject to the qualifications set forth above under the caption *Material U.S. Federal Income Tax Consequences*, the following discussion summarizes the material U.S. federal income tax consequences of the purchase, ownership and disposition of the Series A Preferred Securities by certain non-U.S. holders. For purposes of this discussion, you are a non-U.S. holder if you are a beneficial owner of Series A Preferred Securities and you are an individual, corporation, estate or trust that is not a U.S. holder.

Distributions on the Series A Preferred Securities. Distributions (whether in cash or our common stock or Series A Preferred Securities) made with respect to the Series A Preferred Securities will be treated as dividends to the extent of our current and accumulated earnings and profits as determined under the Code and will be subject to withholding as discussed below. Any portion of a distribution that exceeds our current and accumulated earnings and profits will first be applied to reduce the non-U.S. holder's basis in the Series A Preferred Securities and, to the extent such portion exceeds the non-U.S. holder's basis, the excess will be treated as gain from the disposition of the Series A Preferred Securities, the tax treatment of which is discussed below under *Non-U.S. holder Disposition of Series A Preferred Securities, Including Redemptions*.

Dividends paid to a non-U.S. holder of the Series A Preferred Securities will generally 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. As described above, at the time of this prospectus supplement, we do not believe that we have any accumulated earnings and profits for U.S. federal income tax purposes and may not have sufficient current earnings and profits during future fiscal years for the distributions on the Series A Preferred Securities or common stock to qualify as dividends for U.S. federal income tax purposes. As described under *Disposition of Series A Preferred Securities, Including Redemptions* below, we believe that we are a U.S. real property holding corporation, (a USRPHC) for U.S. federal income tax purposes. Under rules applicable to USRPHCs, to the extent any distribution exceeds our current and accumulated earnings and profits, that portion of the distribution may be subject to the withholding rules described above at a rate not less than 10% unless an applicable income tax treaty specifically provides for a lower rate for distributions from a USRPHC.

Dividends that are effectively connected with the conduct of a trade or business by the non-U.S. holder within the United States (and, where a tax treaty applies, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States) are not subject to withholding tax, provided certain certification and disclosure requirements are satisfied, including by providing a properly executed IRS Form W-8ECI (or other applicable form). Instead, such dividends will be subject to U.S. federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code, unless an applicable income tax treaty provides otherwise. 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 the Series A Preferred Securities who wishes to claim the benefit of an applicable treaty rate and avoid backup withholding, as discussed below, for dividends will be required to (a) complete IRS Form W-8BEN (or other applicable form) and certify under penalty of perjury that such holder is not a United States person as defined under the Code and is eligible for treaty benefits, or (b) if the Series A Preferred Securities are held through certain foreign intermediaries, satisfy the relevant certification requirements of applicable Treasury regulations.

A non-U.S. holder of the Series A Preferred Securities eligible for a reduced rate of U.S. 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.

Table of Contents

Disposition of Series A Preferred Securities, Including Redemptions. Any gain realized by a non-U.S. holder on the disposition of the Series A Preferred Securities will generally not be subject to U.S. federal income or withholding tax unless:

the gain is effectively connected with a trade or business of the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States);

the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of that disposition, and certain other conditions are met; or

we are or have been a USRPHC for U.S. federal income tax purposes, as such term is defined in Section 897(c) of the Code, and such non-U.S. holder owned directly or pursuant to constructive ownership rules at any time during the five-year period ending on the date of disposition more than 5% of the Series A Preferred Securities. This assumes that the Series A Preferred Securities are regularly traded on an established securities market, within the meaning of Section 897(c)(3) of the Code. We believe we are a USRPHC and that the Series A Preferred Securities will be treated as regularly traded on an established securities market.

A non-U.S. holder whose gain is described in the first bullet point immediately above will generally be subject to tax on the net gain derived from the sale under regular graduated U.S. federal income tax rates in the same manner as if the non-U.S. holder were a United States person as defined under the Code, and if it is a corporation, may be subject to the branch profits tax equal to 30% of its effectively connected earnings and profits or at such lower rate as may be specified by an applicable income tax treaty. An individual non-U.S. holder described in the second bullet point immediately above will be subject to a flat 30% tax (unless an applicable income tax treaty provides for a lower rate) on the gain derived from the sale, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the United States. A non-U.S. holder that meets the ownership test described in the third bullet point above will be subject to U.S. federal income tax under regular graduated U.S. federal income tax rates with respect to the gain recognized in the same manner as if the non-U.S. holder were a United States person as defined under the Code.

If a non-U.S. holder is subject to U.S. federal income tax on any disposition of the Series A Preferred Securities, upon any sale, exchange, redemption (except as discussed below), or other disposition of the Series A Preferred Securities, such a non-U.S. holder will recognize capital gain or loss equal to the difference between the amount realized by the non-U.S. holder on any sale, exchange, redemption (except as discussed below), or other disposition, and the non-U.S. holder's adjusted tax basis in the Series A Preferred Securities. Such capital gain or loss will be long-term capital gain or loss if the non-U.S. holder's holding period for the Series A Preferred Securities is longer than one year. A non-U.S. holder should consult its own tax advisors with respect to applicable tax rates and netting rules for capital gains and losses. Certain limitations exist on the deduction of capital losses by both corporate and non-corporate taxpayers.

If a non-U.S. holder is subject to U.S. federal income tax on any disposition of the Series A Preferred Securities, a redemption of shares of the Series A Preferred Securities will be a taxable event. If the redemption is treated as a sale or exchange, instead of a distribution, a non-U.S. holder generally will recognize capital gain or loss (either short or long term capital gain or loss, as discussed above) equal to the difference between the amount of cash received and fair market value of property received and the non-U.S. holder's adjusted tax basis in the Series A Preferred Securities redeemed, except that to the extent that any cash received is attributable to any accrued but unpaid dividends on the Series A Preferred Securities, which generally will be subject to the rules discussed above in *Non-U.S. holder Distributions on the Series A Preferred Securities, Including Redemptions*. A payment made in redemption of Series A Preferred Securities may be treated as a distribution, rather than as payment in exchange for the Series A Preferred Securities, in the same circumstances discussed above under *U.S. holder Disposition of Series A Preferred Securities, Including Redemptions*. Each

Table of Contents

non-U.S. holder of Series A Preferred Securities should consult its own tax advisor to determine whether a payment made in redemption of Series A Preferred Securities will be treated as a distribution or as payment in exchange for the Series A Preferred Securities.

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 non-U.S. holder and the tax withheld with respect to such dividends, regardless of whether withholding was required. Copies of the information returns reporting such dividends and 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.

A non-U.S. holder will not be subject to backup withholding on dividends paid to such non-U.S. holder as long as such non-U.S. holder certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that such non-U.S. holder is a United States person as defined under the Code), or such non-U.S. holder otherwise establishes an exemption.

Depending on the circumstances, information reporting and backup withholding may apply to the proceeds received from a sale or other disposition of the Series A Preferred Securities, unless the beneficial owner certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that the beneficial owner is a United States person as defined under the Code), or such owner otherwise establishes an exemption.

U.S. backup withholding tax is not an additional tax. Any amounts withheld under the backup withholding rules may be allowed as a refund or a credit against a non-U.S. holder's U.S. federal income tax liability provided the required information is timely furnished to the IRS.

Additional Withholding Requirements under FATCA

Sections 1471 through 1474 of the Code, and the Treasury regulations and administrative guidance issued thereunder, impose a 30% withholding tax on any dividends on our Series A Preferred Securities or common stock and on the gross proceeds from a disposition of our Series A Preferred Securities, in each case if paid to a foreign financial institution or a non-financial foreign entity (each as defined in the Code) (including, in some cases, when such foreign financial institution or entity is acting as an intermediary), unless (i) in the case of a foreign financial institution, such institution enters into an agreement with the U.S. government to withhold on certain payments, and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are foreign entities with one or more substantial United States owners (as defined in the Code)), (ii) in the case of a non-financial foreign entity, such entity certifies that it does not have any substantial United States owners or provides the withholding agent with a certification identifying the direct and indirect substantial United States owners of the entity, or (iii) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules. Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these rules may be subject to different rules.

Payments subject to withholding tax under this law generally include dividends paid on stock of a U.S. corporation after June 30, 2014, and gross proceeds from sales or other dispositions of such stock after December 31, 2016. Non-U.S. holders are encouraged to consult their tax advisors regarding the possible implications of these withholding rules.

Table of Contents

USE OF PROCEEDS

We estimate that, in the event that shares offered hereunder are sold at \$25.00 per share, the net proceeds from this offering will be approximately \$2.2 million, before deducting the sales commissions and estimated offering expenses payable by us. We intend to use the net proceeds from the sale of the securities offered by us under this prospectus supplement for general corporate purposes.

S-33

Table of Contents**RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED STOCK DIVIDENDS**

The following table contains our ratios of earnings to combined fixed charges plus preferred stock dividends for the periods indicated:

	Year Ended December 31,					Nine Months
	2008	2009	2010	2011	2012	Ended September 30, 2013
Ratio of earnings to combined fixed charges and preference securities dividends(1)		10.8x				3.0x

- (1) The ratio of earnings to fixed charges and preferred stock dividends was less than one-to-one for the years ended December 31, 2008, 2010, 2011 and 2012. Additional earnings of \$12.5 million, \$12.8 million, \$1.6 million and \$157.9 million, respectively, would have been needed to have a one-to-one ratio of earnings to fixed charges and preferred stock dividends for those periods.

Table of Contents

PLAN OF DISTRIBUTION

We previously entered into a sales agreement with MLV pursuant to which we may offer and sell shares of Series A Preferred Securities from time to time through MLV, as our sales agent. We have included the sales agreement in a Current Report on Form 8-K that we filed with the SEC on June 30, 2011, which is incorporated by reference into this prospectus supplement. Our shares of Series A Preferred Securities are listed on the NYSE MKT under the symbol GST.PR.A. The sales, if any, of Series A Preferred Securities made under the sales agreement will be made in privately negotiated transactions or in any method permitted by law deemed to be an at-the-market offering as defined in Rule 415 promulgated under the Securities Act, at negotiated prices, at prices prevailing at the time of sale or at prices related to such prevailing market prices including sales made directly on the NYSE MKT, or sales made through a market maker other than an exchange.

MLV will sell the shares of Series A Preferred Securities subject to the sales agreement from time to time as agreed upon by us and MLV. Each time we wish to issue and sell shares of Series A Preferred Securities, we will notify MLV of the proposed terms of the placement. Subject to the terms and conditions of the sales agreement, including agreement by MLV of the terms of the placement, MLV will use its commercially reasonable efforts consistent with its normal trading and sales practices to try to sell all of the designated shares of Series A Preferred Securities. We may instruct MLV not to sell shares of Series A Preferred Securities if the sales cannot be effected at or above the price designated by us in any such instruction. MLV will not be obligated to attempt to sell shares if the market price is below the designated price. We or MLV may suspend the offering of shares of Series A Preferred Securities upon proper notice and subject to other conditions.

Under the terms of the sales agreement, MLV will be compensated in an amount ranging from 3% to 5% of gross proceeds from the sales of shares of Series A Preferred Securities. The remaining sales proceeds, after deducting offering expenses and any transaction fees imposed by any governmental or self-regulatory organization in connection with the sales, will equal our net proceeds from the sale of the shares.

Settlement for sales of Series A Preferred Securities will occur on the third business day following the date on which any sales are made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sale of Series A Preferred Securities on our behalf, MLV is an underwriter within the meaning of the Securities Act and compensation to MLV constitutes underwriting commissions. We have agreed to provide indemnification and contribution to MLV against certain civil liabilities, including liabilities under the Securities Act. MLV may engage in transactions with, or perform services for, us in the ordinary course of business.

The offering of Series A Preferred Securities in accordance with the sales agreement will terminate upon the earlier of:

the sale of all shares of Series A Preferred Securities subject to the sales agreement; or

the termination of the sales agreement.

The sales agreement may be terminated by us or MLV at any time upon ten days prior written notice.

MLV and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. MLV previously acted as book-running manager in the initial public offering of 646,295 shares of the Series A Preferred Securities that was conducted on a best efforts basis and as sales agent in our at-the-market offering of up to 3,400,000 shares of the Series A Preferred Securities. MLV has also acted as a joint book-running manager in the initial public offering of 2,000,000 shares of the Series B Preferred Stock that was conducted on a firm commitment basis. In addition, from time to time, MLV and their affiliates may effect transactions for their own accounts or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Table of Contents

LEGAL MATTERS

The validity of the Series A Preferred Securities offered by this prospectus supplement will be passed upon for us by Vinson & Elkins L.L.P., Houston, Texas. Certain legal matters will be passed upon for MLV by Reed Smith LLP, New York, New York.

EXPERTS

The consolidated financial statements of each of Gastar Exploration Ltd. and Gastar Exploration USA, Inc. as of December 31, 2012 and 2011, and for each of the years in the three-year period ended December 31, 2012, and Gastar Exploration Ltd.'s management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2012, incorporated by reference in this prospectus supplement, have been so incorporated in reliance on the reports of BDO USA, LLP, independent registered public accounting firm, incorporated herein by reference, given upon the authority of said firm as experts in accounting and auditing.

The statement of revenues and direct operating expenses of the Chesapeake Acquisition properties for the year ended December 31, 2012 has been incorporated by reference herein in reliance upon the report of BDO USA, LLP, independent registered public accounting firm, given upon the authority of said firm as experts in accounting and auditing.

The statement of revenues and direct operating expenses of the WEHLU Acquisition properties for the years ended December 31, 2012 and 2011 have been incorporated by reference herein in reliance upon the report of BDO USA, LLP, independent registered public accounting firm, given upon the authority of said firm as experts in accounting and auditing.

The information incorporated by reference into this prospectus supplement regarding our estimated quantities of proved reserves, the future net revenues from those reserves and their present value is based, in part, on the estimated reserve evaluations and related calculations of Wright & Company, Inc., independent petroleum engineering consultants, and Netherland, Sewell & Associates, Inc., independent petroleum consultants. These estimates are aggregated and the sums are included in or incorporated by reference into this prospectus supplement in reliance upon the authority of each firm as experts in petroleum engineering.

The information incorporated by reference into this prospectus supplement regarding the estimated proved reserves acquired in the WEHLU Acquisition, the future net revenues from those reserves and their present value is based on the estimated reserve evaluations and related calculations of Wright & Company, Inc., independent petroleum engineers, and have been included or incorporated by reference in reliance on the authority of that firm as experts in petroleum engineering.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus supplement is part of a registration statement on Form S-3 that we filed with the SEC. Certain information in the registration statement has been omitted from this prospectus supplement in accordance with the SEC's rules and regulations. 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 those documents instead of having to repeat the information in this prospectus supplement. The information incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus. In accordance with Section 412 of the Exchange Act, any statement contained in a document incorporated by reference herein shall be deemed modified or superseded to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or

Table of Contents

supersedes such statement. You should review the information and exhibits in the registration statement for further information about us and the securities we are offering. Statements in this prospectus supplement or the accompanying prospectus concerning any document we filed as an exhibit to the registration statement or that we otherwise filed with the SEC are not intended to be comprehensive and are qualified by reference to those filings. You should review the complete document to evaluate these statements.

We incorporate by reference the information and documents listed below and any future filings we will make with the SEC pursuant to Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act after the date of this prospectus supplement until the termination of the offering of the Series A Preferred Securities covered by this prospectus supplement (other than information furnished under Item 2.02 or Item 7.01 of Form 8-K):

our Annual Report on Form 10-K for the fiscal year ended December 31, 2012, filed on March 11, 2013, as amended by the Form 10-K/A filed with the SEC on April 29, 2013 and the Form 10-K/A filed with the SEC on October 24, 2013;

our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2013, filed on May 2, 2013, June 30, 2013, filed on August 5, 2013 and September 30, 2013, filed on November 5, 2013;

our Current Reports on Form 8-K filed on January 8, 2013, February 21, 2013, March 11, 2013, April 1, 2013 (as amended by the Form 8-K/A filed with the SEC on June 27, 2013 and the Form 8-K/A filed with the SEC on October 28, 2013), April 3, 2013, April 23, 2013, May 2, 2013, May 7, 2013, May 10, 2013, May 15, 2013, June 12, 2013, July 3, 2013, July 9, 2013, July 17, 2013, August 6, 2013, August 12, 2013, September 3, 2013, September 6, 2013, September 23, 2013, October 4, 2013, October 8, 2013, October 22, 2013, October 28, 2013, November 1, 2013, November 6, 2013, November 7, 2013, November 15, 2013, November 20, 2013, November 24, 2013, December 24, 2013, January 22, 2014, January 31, 2014 and February 6, 2014 (in each case excluding any information furnished pursuant to Item 2.02 or Item 7.01);

the description of our 8.625% Series A Cumulative Preferred Securities contained in our registration statement on Form 8-A filed on June 20, 2011, including any amendment to that Form that we may have filed in the past, or may file in the future, for the purpose of updating the description of our 8.625% Series A Cumulative Preferred Securities.

In addition, we incorporate by reference in this prospectus supplement any future filings made by Gastar Exploration Inc. with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act (excluding any information furnished and not filed with the SEC) after the date on which the registration statement that includes this prospectus supplement was initially filed with the SEC (including all such documents we may file with the SEC after the date of the initial registration statement and prior to the effectiveness of the registration statement) and until all offerings under this shelf registration statement are terminated.

Any statement contained in a document incorporated by reference herein shall be deemed to be modified or superseded for all purposes to the extent that a statement contained in this prospectus supplement or in any other subsequently filed document which is also incorporated or deemed to be incorporated by reference, modifies or supersedes such statement. Any statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this prospectus supplement.

You may request a copy of these filings (other than an exhibit to a filing unless that exhibit is specifically incorporated by reference into that filing) at no cost by writing or telephoning us at the following address and telephone number:

Gastar Exploration Inc.

1331 Lamar Street, Suite 650

Houston, Texas 77010

Attention: Michael A. Gerlich

Telephone: (713) 739-1800

Table of Contents

We also make available free of charge on our website at <http://www.gastar.com> all of the documents that we file with the SEC as soon as reasonably practicable after we electronically file such material with the SEC. However, the information on our website is not part of this prospectus supplement.

S-38

Table of Contents

PROSPECTUS

\$200,000,000

Gastar Exploration USA, Inc.

Preferred Stock

Gastar Exploration Ltd.

Guarantee of Preferred Securities

Through this prospectus, Gastar Exploration USA, Inc. may periodically offer preferred stock that is fully and unconditionally guaranteed by Gastar Exploration Ltd. in the manner and to the extent as described in this prospectus. The aggregate offering price of the preferred stock may not exceed \$200,000,000. The prices and other terms of the preferred stock and the related guarantees we will offer will be determined at the time of its offering and will be described in a supplement to this prospectus.

There is currently no market for any of the securities included in this prospectus, although Gastar Exploration USA, Inc. intends to list certain series of its preferred stock offered by this prospectus on the NYSE Amex.

The securities may be offered on a delayed or continuous basis directly by us, through agents, underwriters or dealers as designated from time to time, through a combination of these methods or any other method as provided in the applicable prospectus supplement. The names of any underwriters, agents or dealers will be included in a supplement to this prospectus. You should read this prospectus and any applicable prospectus supplement carefully before you invest.

Investing in our securities involves a high degree of risk. Please read the matters set forth in Risk Factors beginning on page 2 of this prospectus, in any prospectus supplement or incorporated by reference herein or therein in determining whether to purchase our securities.

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.

This prospectus is dated June 8, 2011

Table of Contents

You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with different information. We are not making an offer of these securities in any jurisdiction where an offer is not permitted. You should not assume that the information contained in this prospectus is accurate as of any date other than the date on the front cover of this prospectus. Information contained on our website or about us on any other website does not constitute part of this prospectus.

TABLE OF CONTENTS

	Page
<u>Prospectus Summary</u>	1
<u>Risk Factors</u>	2
<u>Cautionary Statements Regarding Forward-Looking Statements</u>	3
<u>Use of Proceeds</u>	5
<u>Ratio of Earnings to Combined Fixed Charges and Preferred Dividends</u>	6
<u>Description of Preferred Securities</u>	7
<u>Description of Guarantee of Preferred Securities</u>	8
<u>Plan of Distribution</u>	9
<u>Legal Matters</u>	12
<u>Experts</u>	12
<u>Where You Can Find More Information</u>	12
<u>Disclosure of SEC Position on Indemnification for Securities Act Liabilities</u>	14

ABOUT THIS PROSPECTUS

Unless otherwise stated or the context otherwise requires, all references to preferred stock or similar terms in the prospectus refer only to the preferred stock of Gastar Exploration USA, Inc. and all references to guarantees in this prospectus refer only to the guarantees of such preferred stock by Gastar Exploration Ltd.

This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission, or the SEC, using a shelf registration process. Under this shelf registration process, we may sell the preferred stock described in this prospectus in one or more offerings up to a total dollar amount of \$200,000,000. This prospectus provides you with a general description of the preferred stock and the related guarantees that we may offer. Each time we sell these securities with this prospectus, we will provide you with a prospectus supplement that will contain specific information about the terms of that offering including, among other things, the specific amounts, prices, and terms of the offered securities. The prospectus supplement may also add to, update or change information in this prospectus. The prospectus supplement will also contain information, where appropriate, about material United States federal income tax consequences relating to, and any listing on a securities exchange of, the securities covered by the prospectus supplement. You should read carefully this prospectus, any prospectus supplement, and the additional information described below.

This prospectus does not contain all the information provided in the registration statement we filed with the SEC. For further information about us or the securities offered by this prospectus, you should refer to that registration statement, which you can obtain from the SEC, as described below under the heading **Where You Can Find More Information**.

When acquiring securities, you should rely only on the information provided in this prospectus and in the related prospectus supplement, including any information incorporated by reference. No one is authorized to provide you with information different from that which is contained, or deemed to be contained, in this prospectus and related prospectus supplement. We are not offering the securities in any state where the offer is prohibited. You should not assume that the information in this prospectus, any prospectus supplement or any document incorporated by reference is truthful or complete as of any date other than the date indicated on the cover page of these documents.

Table of Contents

PROSPECTUS SUMMARY

Our Company

Gastar Exploration USA, Inc. is a Delaware corporation and the primary operating subsidiary of Gastar Exploration Ltd., which owns 100% of the common stock of Gastar Exploration USA, Inc. Gastar Exploration USA, Inc. converted from a Michigan corporation to a Delaware corporation on May 24, 2011.

Gastar Exploration Ltd. is a corporation, incorporated in Alberta and subsisting under the *Business Corporations Act* (Alberta), with its common shares listed on the NYSE Amex under the symbol GST. Gastar Exploration Ltd. is a holding company and substantially all of its operations are conducted through, and substantially all of its assets are held by, its primary operating subsidiary, Gastar Exploration USA, Inc., and its wholly-owned subsidiaries.

Unless otherwise stated or the context otherwise requires, all references in this prospectus to Gastar USA refer solely to Gastar Exploration USA, Inc., all references to Parent refer solely to Gastar Exploration Ltd., and all references to we, us, and our or similar references refer to Gastar Exploration Ltd. and its wholly-owned subsidiaries, including Gastar Exploration USA, Inc., its primary operating company.

Our Business

We are an independent energy company engaged in the exploration, development and production of natural gas and oil in the United States. Our principal business activities include the identification, acquisition, and subsequent exploration and development of natural gas and oil properties. Our emphasis is on prospective deep structures identified through seismic and other analytical techniques as well as unconventional natural gas reserves, such as shale resource plays. We are pursuing natural gas exploration in the Marcellus Shale in the Appalachian area of West Virginia and central and southwestern Pennsylvania and the deep Bossier play in the Hilltop area in East Texas. We also conduct limited coal bed methane development activities within the Powder River Basin of Wyoming and Montana.

Corporation Information

Our principal executive office is located at 1331 Lamar Street, Suite 650, Houston, Texas 77010, and our telephone number at that address is (713) 739-1800. Our website address is www.gastar.com. Information contained on or accessible through our website or about us on any other website is not incorporated by reference into this prospectus and does not constitute a part of this prospectus.

Table of Contents

RISK FACTORS

An investment in our securities involves a significant degree of risk. Before you invest in our securities you should carefully consider the risk factors included in the our most recent Annual Report on Form 10-K, any Quarterly Reports on Form 10-Q and any Current Reports on Form 8-K (each as may be amended), which are incorporated herein by reference, and those risk factors that may be included in the applicable prospectus supplement, together with all of the other information included in this prospectus, any prospectus supplement and the other documents we incorporate by reference in evaluating an investment in our securities.

If any of the risks discussed in the foregoing documents were to occur, our business, financial condition, results of operations and cash flows could be materially adversely affected. In that case, we may be unable to pay interest on, or the principal of, any debt securities. In that event, the trading price of our securities could decline and you could lose all or part of your investment.

For more information please refer to the sections described below under the headings **Cautionary Statements Regarding Forward-Looking Statements** and **Where You Can Find More Information**.

Table of Contents

CAUTIONARY STATEMENTS REGARDING FORWARD-LOOKING STATEMENTS

This prospectus includes forward looking information that is intended to be covered by the forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. All statements other than statements of historical fact included or incorporated by reference in this prospectus are forward-looking statements, including without limitation all statements regarding future plans, business objectives, strategies, expected future financial position or performance, expected future operational position or performance, budgets and projected costs, future competitive position or goals and/or projections of management for future operations. In some cases, you can identify a forward-looking statement by terminology such as may, will, could, should, expect, plan, project, intend, anticipate, believe, potential, pursue, target or continue, the negative of such terms or variations thereon, or other comparable terminology. Forward-looking statements may include statements that relate to, among other things, our:

financial position;

business strategy and budgets;

anticipated capital expenditures;

drilling of wells, including the anticipated scheduling and results of such operations;

natural gas and oil reserves;

timing and amount of future production of natural gas, natural gas liquids, oil and condensate;

operating costs and other expenses;

cash flow and anticipated liquidity;

prospect development; and

property acquisitions and sales.

The forward-looking statements contained in this prospectus are largely based on our expectations for the future, which reflect certain estimates and assumptions made by our management. These estimates and assumptions reflect our best judgment based on currently known market conditions, operating trends and other factors. Although we believe such estimates and assumptions to be reasonable, they are inherently uncertain and involve a number of risks and uncertainties that are beyond our control. As such, management's assumptions about future events may prove to be inaccurate. For a more detailed description of the risks and uncertainties involved, see Item 1A. Risk Factors in Part I of the Annual Report on Form 10-K for the fiscal year ended December 31, 2010 filed with the SEC by Parent. We do not intend to publicly update or revise any forward-looking statements as a result of new information, future events, changes in circumstances or otherwise. These cautionary statements qualify all forward-looking statements attributable to us, or persons acting on our behalf. Management cautions all readers that the forward-looking statements contained in this report are not guarantees of future performance, and we cannot assure any reader that such statements will be realized or that the events and circumstances they describe will occur. Factors that could cause actual results to differ materially from those anticipated or implied in the forward-looking statements herein include, but are not limited to:

the supply and demand for natural gas and oil;

low and/or declining prices for natural gas and oil;

natural gas and oil price volatility;

worldwide political and economic conditions and conditions in the energy market;

our ability to raise capital to fund capital expenditures or repay or refinance debt upon maturity;

Table of Contents

the ability and willingness of our current or potential counterparties, third-party operators or vendors to enter into transactions with us and/or to fulfill their obligations to us;

failure of our joint interest partners to fund any or all of their portion of any capital program;

the ability to find, acquire, market, develop and produce new natural gas and oil properties;

uncertainties about the estimated quantities of natural gas and oil reserves;

strength and financial resources of competitors;

availability and cost of material and equipment, such as drilling rigs and transportation pipelines;

availability and cost of processing and transportation;

changes or advances in technology;

uncertainties in the estimation of proved reserves and in the projection of future rates of production and timing of development expenditures;

the risks associated with exploration, including cost overruns and the drilling of non-economic wells or dry wells, operating hazards inherent to the natural gas and oil business and down hole drilling and completion risks that are generally not recoverable from third parties or insurance;

potential mechanical failure or under-performance of significant wells or pipeline mishaps;

environmental risks;

possible new legislative initiatives and regulatory changes potentially adversely impacting our business and industry, including, but not limited to, national healthcare, cap and trade, hydraulic fracturing, state and federal corporate income taxes, retroactive royalty or production tax regimes, changes in environmental regulations, environmental risks and liability under federal, state and local environmental laws and regulations;

effects of the application of applicable laws and regulations, including changes in such regulations or the interpretation thereof;

potential losses from pending or possible future claims, litigation or enforcement actions;

Edgar Filing: Gastar Exploration Inc. - Form 424B5

potential defects in title to our properties or lease termination due to lack of activity or other disputes with mineral lease and royalty owners, whether regarding calculation and payment of royalties or otherwise;

the weather, including the occurrence of any adverse weather conditions and/or natural disasters affecting our business;

ability to find and retain skilled personnel; and

any other factors that impact or could impact the exploration of natural gas or oil resources, including, but not limited to, the geology of a resource, the total amount and costs to develop recoverable reserves, legal title, regulatory, natural gas administration, marketing and operational factors relating to the extraction of natural gas and oil.

You should not unduly rely on these forward-looking statements in this prospectus, as they speak only as of the date of this prospectus. Except as required by law, we undertake no obligation to publicly update, revise or release any revisions to these forward-looking statements after the date on which they are made to reflect new information, events or circumstances occurring after the date of this prospectus or to reflect the occurrence of unanticipated events.

Table of Contents

USE OF PROCEEDS

Unless we specify otherwise in any prospectus supplement, we expect to use the net proceeds from the sale of securities offered by this prospectus for general corporate purposes, which may include, among other things:

capital expenditures;

the repayment of indebtedness;

working capital; and

to make strategic acquisitions.

The precise amount and timing of the application of such proceeds will depend upon our funding requirements and the availability and cost of other funds.

Table of Contents**RATIO OF EARNINGS TO COMBINED FIXED CHARGES AND PREFERRED DIVIDENDS**

The following table sets forth our historical earnings to combined fixed charges and preferred dividends for Gastar Exploration USA, Inc. for the periods indicated.

	Three Months	Year Ended December 31,				
	Ended March					
	31,	2010	2009	2008	2007	2006
	2011					
Ratio of Earnings to Combined Fixed Charges and						
Preferred Dividends (1)	(2)	(3)	4.8x	(4)	(5)	(6)

(1) No preferred dividends were paid for the periods shown.

(2) Earnings were inadequate to cover combined fixed charges and preferred dividends for the three months ended March 31, 2011 by \$1.8 million.

(3) Earnings were inadequate to cover combined fixed charges and preferred dividends for the year ended December 31, 2010 by \$12.0 million.

(4) Earnings were inadequate to cover combined fixed charges and preferred dividends for the year ended December 31, 2008 by \$12.5 million.

(5) Earnings were inadequate to cover combined fixed charges and preferred dividends for the year ended December 31, 2007 by \$407,000.

(6) Earnings were inadequate to cover combined fixed charges and preferred dividends for the year ended December 31, 2006 by \$67.9 million.

Table of Contents

DESCRIPTION OF PREFERRED SECURITIES

Subject to the filing of one or more Certificates of Designation in accordance with the Delaware General Corporation Law, or the DGCL, the board of directors of Gastar USA, or the Gastar USA Board, may, without the approval of stockholders, at any time and from time-to-time issue one or more series of preferred stock. Subject to the filings of one or more Certificates of Designation and other limitations prescribed by law, the Gastar USA Board may from time-to-time fix, before issuance, the number of shares of each series and the designation, rights, privileges, restrictions and conditions attaching to each series, including, without limiting the generality of the foregoing, the amount, if any, specified as being payable preferentially to such series on a distribution; the extent, if any, of further participation on a distribution; voting rights, if any; and dividend rights (including whether such dividends be preferential, or cumulative or non-cumulative), if any. The authorization of undesignated preferred stock makes it possible for the Gastar USA Board to issue preferred stock with rights or preferences that could impede the success of any attempt to change control of us. These and other provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of us. If Gastar USA offers preferred stock, a description of the rights, privileges, restrictions and conditions attaching thereto will be filed with the SEC and described in the prospectus supplement, including the following terms:

The prospectus supplement with respect to any issuance of preferred stock will specify:

the series, the number of shares offered and the liquidation value of the preferred stock;

the price at which the preferred stock will be issued;

the annual dividend rate, if any, whether the dividend rate is fixed or variable, the date dividends will accrue, the dividend payment dates, and whether dividends will be cumulative;

the price and the terms and conditions for redemption, if any, including redemption at Gastar USA's option or at the option of the holders, including the time period for redemption, and any accumulated dividends or premiums;

the liquidation preference, if any, and any accumulated dividends upon liquidation, dissolution or winding up of Gastar USA's affairs;

any sinking fund or similar provision, and, if so, the terms and provisions relating to the purpose and operation of the fund;

the terms and conditions, if any, for conversion or exchange of the shares of preferred stock into or for shares of any other class or classes of Gastar USA's capital stock or any series of any other class or classes, or of any other series of the same class, or any other securities, including debt securities, or assets, including the price or the rate of conversion or exchange and the method, if any, of adjustment;

if applicable, a discussion of material U.S. federal income tax considerations;

any voting rights; and

any or all other preferences and relative, participating, optional or other special rights, privileges or qualifications, limitations or restrictions.

Edgar Filing: Gastar Exploration Inc. - Form 424B5

Any shares of preferred stock offered pursuant to this prospectus and the applicable prospectus supplement will, upon issuance, be fully paid and non-assessable.

Table of Contents

DESCRIPTION OF GUARANTEE OF PREFERRED SECURITIES

Set forth below is a summary of information concerning the preferred securities guarantees that the Parent will execute and deliver for the benefit of the holders of any series of preferred stock offered by Gastar USA. The following summary does not purport to be complete and is subject in all respects to the provisions of, and is qualified in its entirety by reference to, the form of preferred securities guarantee which is filed as an exhibit to the registration statement of which this prospectus forms a part. A prospectus supplement may contain more specific information about the terms of the preferred securities guarantee.

Pursuant to each preferred stock guarantee, the Parent will agree to pay in full, to the holders of the preferred stock issued by Gastar USA, the guarantee payments, except to the extent paid by Gastar USA, as and when due, regardless of any defense, right of set-off or counterclaim which Gastar USA may have or assert. The following payments, without duplication, with respect to preferred stock, to the extent not paid by Gastar USA, will be subject to the preferred stock guarantee:

any accumulated and unpaid distributions (as described in the applicable Certificate of Designation of the preferred stock) that have been declared by the board of directors of Gastar USA to be paid on the preferred stock out of funds legally available for such dividends;

any redemption price (as described in the applicable Certificate of Designation of the preferred stock), plus all accrued and unpaid dividends to the date of redemption with respect to any preferred stock called for redemption by Gastar USA or otherwise required to be redeemed by the terms of the applicable Certificate of Designation; and

upon a voluntary or involuntary dissolution, winding-up or liquidation of Gastar USA, the aggregate stated liquidation preference and all accumulated and unpaid dividends, whether or not declared, without regard to whether Gastar USA has sufficient assets to make full payment as required on liquidation.

The Parent's obligation to make a guarantee payment may be satisfied by direct payment of the required amounts by the Parent to the holders of preferred stock or by causing Gastar USA to pay the amounts to the holders.

The preferred stock guarantees will be governed by, and construed and interpreted in accordance with, the laws of the State of Texas.

Table of Contents

PLAN OF DISTRIBUTION

General

We may sell the securities offered through this prospectus in any one or more of the following ways:

through underwriters or dealers;

through agents;

directly to purchasers;

in at the market offerings to or through a market maker or into an existing trading market, or a securities exchange or otherwise;

transactions not involving market makers or established trading markets, including direct sales or privately negotiated transactions;
or

through a combination of any of these methods of sale.

In addition, we may sell some or all of the securities included in this prospectus through:

a block trade in which a broker-dealer will attempt to sell as agent, but may position or resell a portion of the block, as principal, in order to facilitate the transaction;

purchases by a broker-dealer, as principal, and resale by the broker-dealer for its account;

ordinary brokerage transactions and transactions in which a broker solicits purchasers; or

privately negotiated transactions.

In addition, we may enter into option or other types of transactions that require us or them to deliver preferred stock to a broker-dealer, who will then resell or transfer the securities under this prospectus. We may enter into hedging transactions with respect to our securities. For example, we may:

enter into transactions with a broker-dealer or affiliate thereof in connection with which such broker-dealer or affiliate will engage in short sales of the preferred stock pursuant to this prospectus, in which case such broker-dealer or affiliate may use shares of preferred stock received from us to close out its short positions;

sell securities short and redeliver such shares to close out our short positions;

enter into option or other types of transactions that require us to deliver preferred stock to a broker-dealer or an affiliate thereof, who will then resell or transfer the preferred stock under this prospectus; or

loan or pledge the preferred stock to a broker-dealer or an affiliate thereof, who may sell the loaned shares or, in an event of default in the case of a pledge, sell the pledged shares pursuant to this prospectus.

The securities described in this prospectus may be distributed at a fixed price or prices, which may be changed, market prices prevailing at the time of sale, prices related to the prevailing market prices, or negotiated prices. Any of the prices may represent a discount from the prevailing market prices.

At the time that any particular offering of securities is made, to the extent required by the Securities Act, a prospectus supplement will be distributed setting forth the terms of the offering, including the aggregate number of securities being offered; the purchase price or initial public offering price of the securities; the names of any underwriters, dealers or agents; the net proceeds to us from the sale of the securities; any delayed delivery

Table of Contents

arrangements; any underwriting discounts, commissions and other items constituting compensation from us; any discounts, commissions or concessions allowed or reallocated or paid to dealers, and any commissions paid to agents.

Market Making and Stabilization

There is currently no market for any of the securities included in this prospectus, although we intend to list certain series of Gastar USA's preferred stock on the NYSE Amex. If the securities are traded after their initial issuance, they may trade at a discount from their initial offering price, depending upon prevailing interest rates, the market for similar securities and other factors. While it is possible that an underwriter could inform us that it intends to make a market in the securities, such underwriter would not be obligated to do so, and any such market making could be discontinued at any time without notice. Therefore, we cannot assure you as to whether an active trading market will develop for these other securities. We have no current plans for the listing of these other securities on any securities exchange or quoting such securities on the over the counter Bulletin Board or such other quotation system; any such listing with respect to these other securities will be described in the applicable prospectus supplement.

If a prospectus supplement so indicates, underwriters, brokers or dealers, in compliance with applicable law, may engage in transactions that stabilize, maintain or otherwise affect the market price of the offered securities, which may be higher than the price that might otherwise prevail in the open market.

Underwriters and Agents

If underwriters are used in the sale, the underwriters will acquire the securities for their own account for resale to the public, either on a firm commitment basis or a best efforts basis. The underwriters may resell the securities from time-to-time in one or more transactions, including negotiated transactions, at a fixed public offering price or at varying prices determined at the time of sale. Underwriters may offer securities to the public either through underwriting syndicates represented by one or more managing underwriters or directly by one or more firms acting as underwriters. Unless we inform you otherwise in the prospectus supplement, the obligations of the underwriters to purchase the securities will be subject to certain conditions. The underwriters may change from time-to-time any initial public offering price and any discounts or concessions allowed or reallocated or paid to dealers.

We may also sell the securities through agents designated from time-to-time. In the prospectus supplement, we will name any agent involved in the offer or sale of the offered securities, and we will describe any commissions payable to the agent. Unless we inform you otherwise in the prospectus supplement, any agent will agree to use its reasonable best efforts to solicit purchases for the period of its appointment.

Dealers

If dealers are used in the sale of securities, we will sell the securities to them as principals. The dealers may then resell those securities to the public at varying prices determined by the dealers at the time of resale. We will include in the prospectus supplement the names of the dealers and the terms of the transaction.

Direct Sales

Securities may also be sold directly by us. In this case, no underwriters or agents would be involved.

Institutional Purchasers

We may sell the securities directly to institutional investors or others who may be deemed to be underwriters within the meaning of the Securities Act with respect to any sale of those securities. We will describe the terms of any such sales in the prospectus supplement.

Table of Contents

Subscription Offerings

We may also make direct sales through subscription rights distributed to Gastar USA's existing stockholders on a pro rata basis, which may or may not be transferable. In any distribution of subscription rights to Gastar USA's stockholders, if all of the underlying securities are not subscribed for, we may then sell the unsubscribed securities directly to third parties or may engage the services of one or more underwriters, dealers or agents, including standby underwriters, to sell the unsubscribed securities to third parties.

Underwriting Compensation

We will bear costs relating to all of the securities being registered under this registration statement of which this prospectus forms a part.

Any broker-dealers or other persons acting on our behalf that participate with us in the distribution of the shares may be deemed to be underwriters and any commissions received or profit realized by them on the resale of the shares may be deemed to be underwriting discounts and commissions under the Securities Act. As of the date of this prospectus, we are not a party to any agreement, arrangement or understanding between any broker or dealer and us with respect to the offer or sale of the securities pursuant to this prospectus.

Pursuant to a requirement by the Financial Industry Regulatory Authority, or FINRA, the maximum commission or discount to be received by any FINRA member or independent broker/dealer may not be greater than eight percent (8%) of the gross proceeds received by us for the sale of any securities being registered pursuant to SEC Rule 415 under the Securities Act. If more than 5% of the net proceeds of any offering of securities made under this prospectus will be received by a FINRA member participating in the offering or its affiliates or associated persons of such FINRA member, the offering will be conducted in accordance with FINRA Conduct Rule 5110(h).

Indemnification; Other Relationships

We may have agreements with agents, underwriters, dealers and remarketing firms to indemnify them against certain civil liabilities, including liabilities under the Securities Act. Agents, underwriters, dealers and remarketing firms, and their affiliates, may engage in transactions with, or perform services for, us in the ordinary course of business. This includes commercial banking and investment banking transactions.

Table of Contents

LEGAL MATTERS

Vinson & Elkins L.L.P. will pass upon the validity of the securities offered in this registration statement. If certain legal matters in connection with an offering of the securities made by this prospectus and a related prospectus supplement are passed on by counsel for the underwriters of such offering, that counsel will be named in the applicable prospectus supplement related to that offering.

EXPERTS

The consolidated financial statements of each of Gastar Exploration Ltd. and Gastar Exploration USA, Ltd. as of December 31, 2010 and 2009 and for each of the three years in the period ended December 31, 2010 and Gastar Exploration Ltd.'s management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2010 incorporated by reference in this prospectus, have been so incorporated in reliance on the reports of BDO USA, LLP, an independent registered public accounting firm, incorporated herein by reference, given on authority of said firm as experts in auditing and accounting.

Information incorporated by reference into this prospectus regarding our estimated quantities of natural gas and oil reserves was prepared by us. Our proved reserve estimates as of December 31, 2010, 2009 and 2008 incorporated by reference into this prospectus were prepared by Netherland, Sewell & Associates, Inc., independent petroleum engineers.

WHERE YOU CAN FIND MORE INFORMATION

We are incorporating by reference into this prospectus information we file with the SEC. This procedure means that we can disclose important information to you by referring you to documents filed with the SEC. The information we incorporate by reference is part of this prospectus and later information that we file with the SEC will automatically update and supersede this information. We incorporate by reference the documents listed below and any future filings made by us with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act (excluding any information furnished and not filed pursuant to Item 2.02, Item 7.01 or certain exhibits furnished pursuant to Item 9.01 of any current report on Form 8-K with the SEC) after the date of the initial registration statement and prior to the effectiveness of the registration statement and after the date of this prospectus until the offering under this registration statement is completed.

Annual Report on Form 10-K for the year ended December 31, 2010, filed by Gastar Exploration Ltd. with the SEC on March 10, 2011 (File No. 001-32714), including information incorporated by reference from the Definitive Proxy Statement on Schedule 14A filed by Gastar Exploration Ltd. with the SEC on April 19, 2011 (File No. 001-32714);

Quarterly Report on Form 10-Q for the quarter ended March 31, 2011, filed by Gastar Exploration Ltd. with the SEC on May 5, 2011 (File No. 001-32714); and

Current Reports on Form 8-K filed by Gastar Exploration Ltd. with the SEC on March 11, 2011, March 11, 2011, March 23, 2011, March 31, 2011 and May 26, 2011 (excluding any information furnished and not filed pursuant to Item 2.02 or Item 7.01 of any Current Report on Form 8-K with the SEC) (each File No. 001-32714).

You may request a copy of these filings at no cost by making written or telephone requests for copies to:

Gastar Exploration Ltd.

Gastar Exploration USA, Inc.

1331 Lamar Street, Suite 650

Houston, Texas 77010

Attention: Michael A. Gerlich

Table of Contents

Additionally, you may read and copy any materials that we have filed with the SEC at the SEC's Public Reference Room at 100 F Street, N.E., Room 1580, Washington, D.C. 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding us. The SEC's website address is <http://www.sec.gov>. You can also obtain copies of the materials we file with the SEC from our website at <http://www.gastar.com>. The information on our website or about us on any other website is not part of this prospectus.

Table of Contents

**DISCLOSURE OF SEC POSITION ON INDEMNIFICATION
FOR SECURITIES ACT LIABILITIES**

Gastar Exploration Ltd.

The following description of the indemnification provisions of the *Business Corporations Act* (Alberta) and of the Parent's bylaws, as amended, does not purport to be complete and is subject to and qualified in its entirety by reference to the *Business Corporations Act* (Alberta) and the full text of the Parent's bylaws, each as amended.

The *Business Corporations Act* (Alberta) allows us to, and the Parent's bylaws provide in part that we will, indemnify each of the Parent's directors and officers, former directors and officers and any person who acts or acted at the Parent's request as a director or officer of a body corporate of which we are or were a shareholder or creditor (each an Indemnified Person), and such Indemnified Person's heirs and legal representatives, against all costs, charges and expenses reasonably incurred by such Indemnified Person in respect of any civil, criminal or administrative action or proceeding to which the Indemnified Person is made a party by reason of being or having been a director or officer of the Parent or that body corporate, if the Indemnified Person: (1) acted honestly and in good faith with a view to the Parent's best interests; and (2) in the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, had reasonable grounds for believing that his conduct was lawful. As used above, costs, charges and expenses includes an amount paid to settle an action or satisfy a judgment. These indemnities will continue in effect after the director or officer resigns his position or his position is terminated for any reason.

On December 13, 2006, the Board of Directors of the Parent approved changes to the Parent's bylaws. Such changes were to clarify the indemnification rights of the directors and officers within Article VIII of the bylaws as set forth in summary below:

Mandatory advancement of expenses to directors with respect to indemnification for proceedings;

Mandatory indemnification to directors, subject to court approval, for actions brought by or in the name of the Parent;

Indemnification for expenses incurred in respect of threatened litigation; and

Entitlement to payment of attorneys fees that directors/officers incur in litigating with the Parent their right to receive indemnity payments from the Parent whether successful or not.

The foregoing rights/entitlements are subject to the director/officer meeting the following standard of conduct:

- (a) The director/officer acting honestly and in good faith with a view to the best interests of the Parent; and
- (b) In the case of a criminal or administrative action or proceeding that is enforced by a monetary penalty, the director/officer having reasonable grounds for believing that the director's/officer's conduct was lawful.

All bylaw changes approved by the Parent's Board of Directors were approved by the Parent's shareholders at its annual meeting of shareholders held in June 2007.

There is currently no pending material litigation or proceeding involving any of the Parent's directors, officers or employees for which indemnification is sought.

Gastar Exploration USA, Inc.

Edgar Filing: Gastar Exploration Inc. - Form 424B5

Section 145 of the DGCL provides that a corporation may indemnify any person, including an officer and director, who was or is, or is threatened to be made, a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of

Table of Contents

such cooperation), by reason of the fact that such person is or was a director, officer, employee or agent of such corporation, or is or was serving at the request of such corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise. The indemnity may include expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding, provided such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of such corporation, and, with respect to any criminal actions and proceedings, had no reasonable cause to believe that his conduct was unlawful. A Delaware corporation may indemnify any person, including an officer or director, who was or is, or is threatened to be made, a party to any threatened, pending or contemplated action or suit by or in the right of such corporation, under the same conditions, except that no indemnification is permitted without judicial approval if such person is adjudged to be liable to such corporation. Where an officer or director of a corporation is successful, on the merits or otherwise, in the defense of any action, suit or proceeding referred to above, or any claim, issue or matter herein, the corporation must indemnify such person against the expenses (including attorneys' fees) which such officer or director actually and reasonably incurred in connection therewith.

Section 5.7 of Gastar USA's Amended and Restated Bylaws provides for indemnification to the fullest extent authorized by the DGCL as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits Gastar USA to provide broader indemnification rights than said law permitted Gastar USA to provide prior to such amendment), against all expense, liability and loss reasonably incurred by such person in connection therewith and such indemnification shall continue as to such person's heirs, executors and administrators; provided, however, that except as provided below with respect to proceedings seeking to enforce rights to indemnification, Gastar USA shall indemnify any such person seeking indemnification in connection with a proceeding (or part thereof) initiated by such person only if such proceeding (or part thereof) was authorized by the Board of Directors of the Gastar USA.

If a claim is not paid in full by Gastar USA within thirty days after a written claim has been received by Gastar USA, the claimant may at any time thereafter bring suit against Gastar USA to recover the unpaid amount of the claim and, if successful in whole or in part, the claimant shall be entitled to be paid also the expense of prosecuting such claim. It shall be a defense to any such action (other than an action brought to enforce a claim for expenses incurred in defending any proceeding in advance of its final disposition where the required undertaking, if any is required, has been entered to Gastar USA) that the claimant has not met the standards of conduct which make it permissible under the DGCL for Gastar USA to indemnify the claimant for the amount claimed, but the burden of proving such defense shall be on Gastar USA.

SEC Position on Indemnification for Securities Act Liabilities

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by a registrant of expenses incurred or paid by a director, officer or controlling person of a registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, that registrant will, unless in the opinion of its counsel the claim has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.