
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-3

REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933

Kodiak Gas Services, Inc.
(Exact name of registrant as specified in its charter)

**9950 Woodloch Forest Drive, Suite 1900
The Woodlands, Texas 77380**

83-3013440

Delaware
(State or other jurisdiction of incorporation or organization)

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

(I.R.S. Employer Identification Number)

**Kelly M. Battle
Executive Vice President, Chief Legal Officer,
Chief Compliance Officer and Corporate Secretary
9950 Woodloch Forest Drive, Suite 1900
The Woodlands, Texas 77380
(936) 539-3300**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:
**Matthew R. Pacey, P.C.
Jennifer Wu, P.C.
Atma J. Kabad
Kirkland & Ellis LLP
609 Main Street, Suite 4700
Houston, Texas 77002
(713) 836-3600**

Approximate date of commencement of proposed sale to the public: From time to time after this registration statement becomes effective.

If the only securities being registered on this Form are being offered pursuant to dividend or interest reinvestment plans, please check the following box

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box:

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this Form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this Form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

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

| | | | |
|-------------------------|-------------------------------------|---------------------------|-------------------------------------|
| Large accelerated filer | <input type="checkbox"/> | Accelerated filer | <input type="checkbox"/> |
| Non-accelerated filer | <input checked="" type="checkbox"/> | Smaller reporting company | <input type="checkbox"/> |
| | | Emerging growth company | <input checked="" type="checkbox"/> |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act.

PROSPECTUS

KODIAK GAS SERVICES, INC.

Common Stock Preferred Stock Warrants Units

Up to 59,000,000 Shares of Common Stock Offered by the Selling Stockholders

This prospectus relates to the offer and sale from time to time, together or separately, in one or more offerings of common stock of Kodiak Gas Services, Inc. (“Kodiak”, “we”, “us” or the “Company”), \$0.01 par value per share (“Common Stock”), preferred stock (“Preferred Stock”), warrants to purchase Common Stock, Preferred Stock or any combination thereof (“Warrants”) and units (“Units”, and collectively with the Common Stock, Preferred Stock and Warrants, the “Securities”), by the Company. In addition, the selling stockholders named in this prospectus or any supplement to this prospectus may offer and sell up to 59,000,000 shares of our Common Stock from time to time in amounts, at prices and on terms that will be determined at the time of any such offering.

We are registering the offer and sale of the shares of the Common Stock owned by the selling stockholders to satisfy registration rights we have granted to the selling stockholders pursuant to a registration rights agreement dated as of July 3, 2023 (the “Registration Rights Agreement”). We have agreed to bear all of the expenses incurred in connection with the registration of the Common Stock covered by this prospectus. The selling stockholders will pay or assume brokerage commissions and similar charges, if any, incurred in the sale of the Common Stock.

Unless we inform you otherwise in a prospectus supplement or free writing prospectus, we intend to use the net proceeds from the sale of the Securities we are offering for general corporate purposes. We will not receive any proceeds from the offer or sale of the Common Stock by the selling stockholders pursuant to this prospectus. See “Selling Stockholders” for a more detailed discussion about the selling stockholders.

The Securities to which this prospectus relates may be offered and sold from time to time directly by us or the selling stockholders or alternatively through underwriters, broker dealers or agents. We or the selling stockholders, as applicable, will determine at what price we or the selling stockholders may sell the Common Stock offered by this prospectus, and such sales may be made at fixed prices, at prevailing market prices at the time of the sale, at varying prices determined at the time of sale, or at negotiated prices. For additional information on the methods of sale that may be used by us or the selling stockholders, see the section entitled “*Plan of Distribution.*”

We may amend or supplement this prospectus from time to time by filing amendments or supplements as required. You should carefully read this prospectus and any prospectus supplement or amendment before you invest. You also should read the documents we have referred you to in the “*Where You Can Find More Information*” section of this prospectus for information about us and our financial statements.

We have not, and the selling stockholders have not, authorized anyone to give you any information other than in this prospectus and the information incorporated by reference herein. We take no responsibility for, and can provide no assurances as to the reliability of, any other information that others may give you.

Our Common Stock is quoted on The New York Stock Exchange (“NYSE”) under the symbol KGS. On July 8, 2024, the last reported sale price of Common Stock on the NYSE was \$26.67 per share. We will provide information in the prospectus supplement for the trading market, if any, for any Preferred Stock, Warrants or Units we may offer.

Our principal executive office is located at 9950 Woodloch Forest Drive, Suite 1900, The Woodlands, Texas 77380, and our telephone number is (936) 539-3300.

Investing in our Securities involves risks. You should carefully review the risks and uncertainties described under the heading "Risk Factors" contained on page 5 herein and in the applicable prospectus supplement and under similar headings in the other documents incorporated by reference into this prospectus.

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

The date of this prospectus is July 9, 2024

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This prospectus is part of a registration statement that we have filed with the Securities and Exchange Commission (the “SEC”) pursuant to which we or the selling stockholders named herein may, from time to time, offer and sell or otherwise dispose of the Securities covered by this prospectus. You should not assume that the information contained in this prospectus is accurate on any date subsequent to the date set forth on the front cover of this prospectus or that any information we have incorporated by reference is correct on any date subsequent to the date of the document incorporated by reference, even though this prospectus is delivered or the Securities are sold or otherwise disposed of on a later date. It is important for you to read and consider all information contained in this prospectus, including the documents incorporated by reference therein, in making your investment decision. You should also read and consider the information in the documents to which we have referred you under the caption “*Where You Can Find More Information*” in this prospectus.

We have not authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses we have prepared. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and the selling stockholders are not, making an offer to sell these Securities in any jurisdiction where an offer or sale is not permitted.

This prospectus contains forward-looking statements that are subject to a number of risks and uncertainties, many of which are beyond our control. Please read “*Risk Factors*” and “*Cautionary Note Regarding Forward-Looking Statements*.”

ABOUT THIS PROSPECTUS

This prospectus is part of a “shelf registration statement” on Form S-3 that we filed with the SEC, utilizing a “shelf” registration process. Under this shelf registration process, we may offer and sell from time to time, together or separately, in one or more offerings, any combination of the Securities described in this prospectus, and the selling stockholders named herein may offer and sell from time to time, in one or more offerings, shares of Common Stock as described in this prospectus.

This prospectus provides you with a general description of the Securities we or the selling stockholders may offer. Each time we or the selling stockholders offer Securities, we will provide a prospectus supplement accompanied by this prospectus. The prospectus supplement will contain specific information about the nature of the Company or the persons offering Securities and the terms of the Securities being offered at that time. The prospectus supplement may also add, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and any prospectus supplement, you should rely on the information in the prospectus supplement.

We have provided you only with the information contained in this prospectus, including information incorporated by reference in this prospectus and the accompanying prospectus supplement. We have not, and the selling stockholders have not, authorized anyone to give you any information other than in this prospectus and the information incorporated by reference herein. Neither we nor the selling stockholders take any responsibility for, and can provide no assurance as to the reliability of any other information that others may give you. Neither we nor the selling stockholders are making an offer to sell securities in any jurisdiction where the offer or sale of securities is not permitted. You should not assume that the information included in this prospectus, any applicable prospectus supplement, or the documents incorporated by reference herein is accurate as of any date other than their respective dates. Our business, financial condition, results of operations and prospects may have changed since those dates.

You should read carefully the entire prospectus and any applicable prospectus supplement, as well as the documents incorporated by reference in this prospectus, before making an investment decision.

When used in this prospectus, except where the context otherwise requires, the terms “we,” “us,” “our” and “the Company” refer to Kodiak Gas Services, Inc. and its consolidated subsidiaries.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a Registration Statement on Form S-3 to register the offer and sale of the Securities covered hereby. This prospectus, which forms part of the Registration Statement, does not contain all of the information included in that Registration Statement. For further information about us and the Securities covered by this prospectus, you should refer to the Registration Statement and its exhibits. Certain information is also incorporated by reference in this prospectus as described under "Incorporation of Certain Documents by Reference."

We are subject to the information and periodic reporting requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and, in accordance therewith, file periodic reports, proxy statements and other information with the SEC. Such periodic reports, proxy statements and other information are available at the website of the SEC at <http://www.sec.gov>. We also furnish our stockholders with annual reports containing our financial statements audited by an independent registered public accounting firm and quarterly reports containing our unaudited financial information. We maintain a website at www.kodiakgas.com. You may access our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports, filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act with the SEC free of charge at our website as soon as reasonably practicable after this material is electronically filed with, or furnished to, the SEC. The reference to our website or web address does not constitute incorporation by reference of the information contained at that site.

We have not authorized anyone to provide you with any information other than that contained in this prospectus or in a document to which we expressly have referred you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. You should assume that the information appearing in this prospectus is accurate only as of the date on the front cover of this prospectus.

INFORMATION INCORPORATED BY REFERENCE

The SEC allows us to incorporate by reference the information we file with it. This means that we can disclose information to you by referring you to those documents. The documents that have been incorporated by reference are an important part of the prospectus, and you should review that information in order to understand the nature of any investment by you in our shares of Common Stock. Information that we later provide to the SEC, and which is deemed to be “filed” with the SEC, will automatically update information previously filed with the SEC, and may update or replace information in this prospectus and information previously filed with the SEC. We incorporate by reference the following documents that we have filed with the SEC (other than any portions of these documents that were deemed to have been furnished and not filed in accordance with the SEC rules, including pursuant to Item 2.02 or Item 7.01 of any Current Report on Form 8-K, including any financial statements or exhibits related thereto and furnished pursuant to Item 9.01), unless otherwise indicated herein:

- our Annual Report on Form 10-K for the year ended December 31, 2023 filed on March 7, 2024;
- the description of our Common Stock contained in our Form 8-A filed on June 28, 2023, including any amendment to that Form that we may file in the future for the purpose of updating the description of our Common Stock;
- our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024 filed on May 9, 2024;
- our Definitive Proxy Statement on Schedule 14A filed on March 25, 2024 and;
- our current reports on Form 8-K filed with the SEC on January 23, 2024, February 2, 2024, March 8, 2024, April 1, 2024, May 3, 2024, May 31, 2024, and June 24, 2024.

All documents subsequently filed by us pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act, including all such documents we may file with the SEC after the date of the initial registration and prior to the effectiveness of the Registration Statement (excluding, in each case, any information deemed furnished rather than filed), shall be deemed to be incorporated by reference in this prospectus until the termination of each offering under this prospectus.

Upon request, we will provide to each person, including any beneficial owner, to whom this prospectus is delivered, a copy of any or all of the reports or documents that have been incorporated by reference in this prospectus. If you would like a copy of any of these documents, at no cost, please write or call us at:

Kodiak Gas Services, Inc.
9950 Woodloch Forest Drive, Suite 1900
The Woodlands, Texas 77380
(936) 539-3300

Any statement contained in a document which is incorporated by reference in this prospectus is automatically updated and superseded if information contained in the prospectus modifies or replaces this information.

OUR COMPANY

Kodiak is the largest contract compression services provider in the continental United States with a revenue-generating fleet of approximately 4.3 million horsepower. We focus on providing contract compression and related services to oil and gas producers and midstream customers in high-volume gas gathering systems, processing facilities, multi-well gas lift applications and natural gas transmission systems. Shares of our Common Stock trade on the NYSE under the ticker symbol "KGS".

Our principal executive offices are located at 9950 Woodloch Forest Drive, Suite 1900, The Woodlands, Texas 77380, and our telephone number is (936) 539-3300. We maintain a website at www.kodiakgas.com. Information contained on, or accessible through, our website is not incorporated by reference in this prospectus.

RISK FACTORS

Investing in the Securities described herein involves risk. We urge you to carefully consider the risk factors described in our most recent Annual Report on Form 10-K and any updates in our Quarterly Reports on Form 10-Q, together with any other SEC filings that are incorporated by reference in this prospectus and, if applicable, in any prospectus supplement used in connection with an offering of our Securities, as well as the information relating to us identified herein in “Cautionary Statement Regarding Forward-Looking Statements,” before making an investment decision. Although we discuss key risks in our discussion of risk factors, new risks may emerge in the future, which may prove to be significant. Our subsequent filings with the SEC may contain amended and updated discussions of significant risks. We cannot predict future risks or estimate the extent to which they may affect our financial performance.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains “forward-looking statements” within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Forward-looking statements can be identified by words such as: “anticipate,” “intend,” “plan,” “goal,” “seek,” “believe,” “project,” “estimate,” “expect,” “strategy,” “future,” “likely,” “may,” “should,” “will” and similar references to future periods. Examples of forward-looking statements include, among others, statements we make regarding:

- Expected operating results, such as revenue growth and earnings, and our ability to service our indebtedness;
- Anticipated levels of capital expenditures and uses of capital;
- Current or future volatility in the credit markets and future market conditions;
- Potential or pending acquisition transactions or other strategic transactions, the timing thereof, the receipt of necessary approvals to close such transactions, our ability to finance such transactions, and our ability to achieve the intended operational, financial and strategic benefits from any such transactions;
- Expected synergies and efficiencies to be achieved as a result of our acquisition of CSI Compressco LP (“CSI Compressco” and such acquisition, the “CSI Acquisition”);
- Expectations regarding leverage and dividend profile as a result of the CSI Acquisition, including the amount and timing of future dividend payments;
- Expectations of the effect on our financial condition of claims, litigation, environmental costs, contingent liabilities, and governmental and regulatory investigations and proceedings;
- Production and capacity forecasts for the natural gas and oil industry;
- Strategy for customer retention, growth, fleet maintenance, market position and financial results;
- Our interest rate hedges; and
- Strategy for risk management.

Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not place undue reliance on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, the following:

- A reduction in the demand for natural gas and oil;
- The loss of, or the deterioration of the financial condition of, any of our key customers;
- Nonpayment and nonperformance by our customers, suppliers or vendors;
- Competitive pressures that may cause us to lose market share;

- The structure of our Compression Operations contracts and the failure of our customers to continue to contract for services after expiration of the primary term;
- Our ability to successfully integrate any acquired businesses, including CSI Compresco, and realize the expected benefits thereof;
- Our ability to fund purchases of additional compression equipment;
- A deterioration in general economic, business, geopolitical or industry conditions, including as a result of the conflict between Russia and Ukraine and the Israel-Hamas War, inflation and slow economic growth in the United States;
- A downturn in the economic environment, as well as inflationary pressures;
- Tax legislation and administrative initiatives or challenges to our tax positions;
- The loss of key management, operational personnel or qualified technical personnel;
- Our dependence on a limited number of suppliers;
- The cost of compliance with existing and new governmental regulations, including climate change legislation;
- The cost of compliance with regulatory initiatives and stakeholders' pressures, including environmental, social and governance scrutiny;
- The inherent risks associated with our operations, such as equipment defects and malfunctions;
- Our reliance on third-party components for use in our information technology systems;
- Legal and reputational risks and expenses relating to the privacy, use and security of employee and client information;
- Threats of cyber-attacks or terrorism;
- Agreements that govern our debt contain features that may limit our ability to operate our business and fund future growth and also increase our exposure to risk during adverse economic conditions;
- Volatility in interest rates;
- Our ability to access the capital and credit markets or borrow on affordable terms to obtain additional capital that we may require;
- The effectiveness of our disclosure controls and procedures; and
- Such other factors set forth in Part I, Item 1A, "Risk Factors" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2023, and Part I, Item 2, "Management's Discussion and Analysis of Financial Condition and Results of Operations" of our Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2024.

Any forward-looking statement made by us in this prospectus is based only on information currently available to us and speaks only as of the date on which it is made. Except as may be required by applicable law, we undertake no obligation to publicly update any forward-looking statement whether as a result of new information, future developments or otherwise.

All forward-looking statements, expressed or implied, included in this prospectus are expressly qualified in their entirety by this cautionary statement. This cautionary statement should also be considered in connection with any subsequent written or oral forward-looking statements that we or persons acting on our behalf may issue.

Investors should note that we announce financial information in SEC filings. We may use the “Investors” section of our website (www.kodiakgas.com) to communicate with investors. It is possible that the financial and other information posted there could be deemed to be material information. The information on our website is not part of this prospectus.

USE OF PROCEEDS

Unless we inform you otherwise in a prospectus supplement or free writing prospectus, we intend to use the net proceeds from the sale of Securities we are offering for general corporate purposes. This may include, among other things, additions to working capital, repayment or refinancing of existing indebtedness or other corporate obligations, financing of capital expenditures and acquisitions and investment in existing and future projects. Any specific allocation of the net proceeds of an offering of Securities to a specific purpose will be determined at the time of the offering and will be described in an accompanying prospectus supplement or free writing prospectus.

The selling stockholders may offer and sell up to an aggregate of 59,000,000 shares of Common Stock under this prospectus. See the section entitled, "*Selling Stockholders*." Accordingly, we will not receive any proceeds from the sales of Common Stock sold by the selling stockholders. We will bear the costs associated with the sale of any shares of Common Stock under this prospectus by the selling stockholders, other than underwriting fees, discounts and commissions.

SELLING STOCKHOLDERS

This prospectus covers the offering for resale of up to an aggregate of 59,000,000 shares of Common Stock, that may be offered and sold from time to time under this prospectus by the selling stockholders identified below, subject to any appropriate adjustment as a result of any stock dividend, stock split or distribution, or in connection with a combination of shares, and any security into which such shares of Common Stock shall have been converted or exchanged in connection with a recapitalization, reorganization, reclassification, merger, consolidation, exchange, distribution or otherwise.

On July 3, 2023, we entered into the Registration Rights Agreement with the selling stockholders pursuant to which we were obligated to prepare and file a registration statement to permit the resale of certain shares of Common Stock held by the selling stockholders from time to time as permitted by Rule 415 promulgated under the Securities Act of 1933, as amended (the "Securities Act").

We have prepared the table, the paragraph immediately following this paragraph, and the related notes based on information supplied to us by the selling stockholders and such information is as of July 2, 2024 (except as otherwise noted). We have not sought to verify such information. We believe, based on information supplied by the selling stockholders, that except as may otherwise be indicated in the footnotes to the table below, the selling stockholders have sole voting and dispositive power with respect to the shares of Common Stock reported as beneficially owned by them. Because the selling stockholders identified in the table may sell some or all of the shares of Common Stock owned by them which are included in this prospectus, and because there are currently no agreements, arrangements or understandings with respect to the sale of any of the shares of Common Stock, no estimate can be given as to the number of the shares of Common Stock available for resale hereby that will be held by the selling stockholders upon termination of this offering. In addition, the selling stockholders may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time and from time to time, the shares of Common Stock it holds in transactions exempt from the registration requirements of the Securities Act after the date on which the selling stockholders provided the information set forth on the table below. We have, therefore, assumed for the purposes of the following table, that the selling stockholders will sell all of the shares of Common Stock beneficially owned by them that are covered by this prospectus. The selling stockholders are not obligated to sell any of the shares of Common Stock offered by this prospectus. The percent of beneficial ownership for the selling stockholders is based on 84,294,358 shares of Common Stock outstanding as of July 2, 2024, and, unless otherwise noted, does not take into account the 5,562,273 shares of Series A Preferred Stock issued and outstanding as of July 2, 2024.

| | Shares of Common Stock Beneficially Owned Prior to the Offering ⁽¹⁾ | | Shares of Common Stock Offered Hereby | Shares of Common Stock Beneficially Owned After Completion of the Offering | |
|----------------------------------|---|------------|---|---|------------|
| | Number | Percentage | | Number | Percentage |
| Selling stockholders: | | | | | |
| Frontier TopCo Partnership, L.P. | 59,000,000 | 69.9% | 59,000,000 | 0 | — |

-
- (1) The amounts and percentages of Common Stock beneficially owned are reported on the basis of regulations of the SEC governing the determination of beneficial ownership of securities. Under the rules of the SEC, a person is deemed to be a "beneficial owner" of a security if that person has or shares voting power, which includes the power to vote or direct the voting of such security, or investment power, which includes the power to dispose of or to direct the disposition of such security. Under these rules, more than one person may be deemed to be a beneficial owner of the same securities, and a person may be deemed to be a beneficial owner of securities as to which such person has no economic interest.
- (2) Based on a Schedule 13G filed by Frontier TopCo Partnership, L.P. ("Kodiak Holdings") on February 12, 2024. Consists of shares of Common Stock held directly by Kodiak Holdings. Frontier Topco GP, LLC ("Frontier GP") is the general partner of Kodiak Holdings. EQT Infrastructure III SCSp ("EQT Infrastructure III") and EQT Infrastructure IV SCSp ("EQT Infrastructure IV") collectively own 100% of the membership interests in

Frontier GP, EQT Fund Management S.a` r.l. ("EFMS") has exclusive responsibility for the management and control of the business and affairs of investment vehicles which constitute the majority of the total commitments to EQT Infrastructure III and EQT Infrastructure IV. As such, EFMS has the power to control Frontier GP's voting and investment decisions and may be deemed to have beneficial ownership of the securities held by Kodiak Holdings. EFMS is overseen by a board that acts by majority approval. The individual members of such board are Joshua Stone, Peter Veldman and Sara Huda. The registered address of Kodiak Holdings and Frontier GP is 108 Lakeland Ave, Dover, Kent County, Delaware, 19901 USA. The registered address of EFMS is 51A, Boulevard Royal, L-2449 Luxembourg, Grand Duchy of Luxembourg, which is also the mailing address of each of Kodiak Holdings and Frontier GP. Kodiak Holdings has pledged the shares it owns as collateral under that certain Amended and Restated Credit Agreement, dated as of May 19, 2022, as amended by that certain First Amendment, dated March 31, 2023, among Kodiak Gas Services, LLC, Frontier Intermediate Holding, LLC, the administrative agent, and the lenders party thereto, the obligations of which were assumed by Kodiak Holdings (and which were further assumed by a parent entity of Kodiak Holdings), and has granted the lenders thereunder certain consent rights over Kodiak Holdings' exercise of its rights under the Stockholders' Agreement (as defined below).

PLAN OF DISTRIBUTION

As of the date of this prospectus, we have not determined any plan of distribution and we have not been advised by the selling stockholders as to any plan of distribution. Distributions of Common Stock by the selling stockholders, or by their partners, pledgees, donees (including charitable organizations), transferees or other successors in interest, may from time to time be offered for sale either directly by such individuals, or through underwriters, dealers or agents or on any exchange on which the Common Stock may from time to time be traded, in the over-the-counter market, or in independently negotiated transactions or otherwise. The methods by which the Securities may be sold by us or the selling stockholders include:

- privately negotiated transactions;
- underwritten transactions;
- exchange distributions and/or secondary distributions;
- in market transactions on any national securities exchange, transactions other than on exchanges or sales in the over-the-counter market;
- ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- broker-dealers may agree with the selling stockholders to sell a specified number of such shares at a stipulated price per share;
- a block trade (which may involve crosses) in which the broker or dealer so engaged will attempt to sell the Securities as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker or dealer as principal and resale by such broker or dealer for its own account pursuant to this prospectus;
- short sales;
- through the writing of options on the shares or other hedging transactions, whether or not the options or such other derivative securities are listed on an exchange;
- through the distributions of the shares by the selling stockholders to their partners, members or stockholders;
- a combination of any such methods of sale; and
- any other method permitted pursuant to applicable law.

We or the selling stockholders may also sell shares of Common Stock under Rule 144 under the Securities Act, in each case if available, rather than under this prospectus.

Such transactions may be effected by us or the selling stockholders at market prices prevailing at the time of sale or at negotiated prices. We or the selling stockholders may effect such transactions by selling the Securities to underwriters or to or through broker-dealers, and such underwriters or broker-dealers may receive compensation in the form of discounts or commissions from us or the selling stockholders and may receive commissions from the purchasers of the securities for whom they may act as agent. We or the selling stockholders may agree to indemnify any underwriter, broker-dealer or agent that participates in transactions involving sales of the Securities against certain liabilities, including liabilities arising under the Securities Act. We have agreed to register the Common Stock for sale under the Securities Act and to indemnify the selling stockholders and each person who participates as an underwriter in the offering of the Common Stock against certain civil liabilities, including certain liabilities under the Securities Act.

In connection with sales of the Common Stock under this prospectus, the selling stockholders may enter into hedging transactions with broker-dealers, who may in turn engage in short sales of the Common Stock in the course of hedging the positions they assume. The selling stockholders also may sell Common Stock short and deliver them to close their short positions, or loan or pledge the securities to broker-dealers that in turn may sell them.

The selling stockholders may from time to time pledge or grant a security interest in some or all of the Common Stock owned by them and, if they default in the performance of their secured obligations, the pledgees or secured parties may offer and sell Common Stock from time to time under this prospectus, or under an amendment to this prospectus under Rule 424 or other applicable provision of the Securities Act amending the list of selling stockholders to include the pledgee, transferee or other successors in interest as selling stockholders under this prospectus.

There can be no assurances that the selling stockholders will sell any or all of the Common Stock offered under this prospectus.

DESCRIPTION OF CAPITAL STOCK

The following description of the Company's capital stock is not complete and may not contain all the information you should consider before investing in the Company's capital stock. This description is summarized from, and qualified in its entirety by reference to, our Amended and Restated Certificate of Incorporation (the "Charter") and our Second Amended and Restated Bylaws (the "Bylaws"), which have been publicly filed with the SEC. See "Where You Can Find More Information" and "Information Incorporated by Reference."

Authorized Capitalization

The Charter provides that the Company is authorized to issue 800,000,000 shares of capital stock, divided into two classes consisting of (a) 750,000,000 shares of Common Stock and (b) 50,000,000 shares of Preferred Stock, 6,000,000 of which are currently designated as Series A Preferred Stock, par value of \$0.01 per share (the "Series A Preferred Stock")

Common Stock

As of July 2, 2024, there were 84,294,358 shares of Common Stock issued and outstanding.

Voting Rights

Each holder of Common Stock, as such, is entitled to one vote for each share of Common Stock held of record by such holder on all matters on which stockholders generally are entitled to vote. Notwithstanding the foregoing, to the fullest extent permitted by law, holders of Common Stock, as such, have no voting power with respect to, and are not entitled to vote on, any amendment to the Charter (including any Certificate of Designation relating to any series of Preferred Stock) that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Charter (including any Certificate of Designation relating to any series of Preferred Stock) or pursuant to the Delaware General Corporation Law (the "DGCL"). Except as otherwise provided in the Charter or required by applicable law, the holders of Common Stock shall vote together as a single class (or, if the holders of one or more series of Preferred Stock (such as the Series A Preferred Stock) are entitled to vote together with the holders of Common Stock, as a single class with the holders of such other series of Preferred Stock) on all matters submitted to a vote of the stockholders generally.

Exchange Rights

Subject to certain limitations, each common unit ("OpCo Unit") of Kodiak Gas Services, LLC ("Kodiak Services") held by an electing unitholder ("Electing Unitholder") is redeemable for either, at Kodiak Services' election, (i) one share of Common Stock (together with the cancellation of one share of Series A Preferred Stock), subject to conversion rate adjustments for stock splits, stock dividends, reclassification and other similar transactions, or (ii) an equivalent amount of cash, pursuant to the terms of the Sixth Amended and Restated Limited Liability Company Agreement of Kodiak Services (the "OpCo LLC Agreement"). Subject to certain exceptions in the OpCo LLC Agreement, Electing Unitholders are not be able to sell, transfer or redeem OpCo Units and Series A Preferred Stock prior to September 29, 2024 (180 days following the consummation of the CSI Acquisition).

Dividends and Liquidation

Subject to the rights and preferences of any Preferred Stock that the Company may issue in the future (including, with respect to distributions in liquidation, the Series A Preferred Stock), the holders of Common Stock are entitled to receive:

- dividends as may be declared by the board of directors of the Company (the "Board"); and
- all of the Company's assets available for distribution to stockholders in liquidation, pro rata, based on the number of shares held.

No redemption or sinking fund provisions is applicable to the Common Stock. All outstanding shares of Common Stock are fully paid and non-assessable.

Preferred Stock

As of July 2, 2024, there were 5,562,273 shares of Preferred Stock issued and outstanding.

Authorized and unissued shares of Preferred Stock may be issued from time to time in one or more additional series as the Board, by resolution or resolutions, may from time to time determine, each of said series to be distinctively designated. The voting powers, preferences and relative, participating, optional and other special rights, and the qualifications, limitations or restrictions thereof, if any, of each such series of Preferred Stock may differ from those of any and all other series of Preferred Stock (including the Series A Preferred Stock) at any time outstanding, and, subject to certain exceptions set forth in the Charter, and applicable law, the Board may fix or alter, by resolution or resolutions, the designation, number, voting powers, preferences and relative, participating, optional and other special rights, and the qualifications, limitations and restrictions thereof, of each series of Preferred Stock.

Series A Preferred Stock

Dividends

Except with respect to dividends in connection with the adoption of a “poison pill” or similar shareholders rights plan, the holders of Series A Preferred Stock will not be entitled to receive any dividends (including cash, stock or property) in respect of their Series A Preferred Stock. However, in the event of a dividend to holders of shares of Common Stock in the form of shares of Common Stock or rights to acquire shares of Common Stock, the holders of Series A Preferred Stock will be entitled to simultaneously receive a dividend of Series A Preferred Stock or rights to acquire Series A Preferred Stock, in each case in the same proportion and manner.

Liquidation Preference

Any shares of Series A Preferred Stock offered hereby will be fully paid and nonassessable. In addition, in the event of any voluntary or involuntary liquidation, dissolution or winding-up of the Company, each holder of Series A Preferred Stock will be entitled to receive out of the assets of the Company available for distribution to the Company’s stockholders, before any distribution of assets is made on shares of Common Stock, an amount equal to \$0.01 per share of Series A Preferred Stock. Neither the voluntary sale, conveyance, exchange or transfer, for cash, shares of stock, securities or other consideration, of all or substantially all of the Company’s property or assets, nor the merger or consolidation of the Company with or into any corporation or other entity or the merger or consolidation of any corporation or other entity with or into the Company will be deemed to be a voluntary or involuntary liquidation, dissolution or winding-up of the Company.

Voting Rights

Each holder of Series A Preferred Stock will be entitled to one vote for each share of Series A Preferred Stock on all matters submitted to a vote of the holders of Common Stock, as adjusted to account for any subdivision or combination of shares of Common Stock. Except as otherwise provided in the Charter or required by applicable law, the holders of the Series A Preferred Stock will vote together as a single class with the holders of Common Stock on all matters submitted to a vote of the Company’s stockholders generally.

Merger or Consolidation

In the event of a merger or consolidation of the Company with or into another entity (whether or not the Company is the surviving entity) or any other transaction in which shares of Common Stock are exchanged for or converted into other stock or securities, or the right to receive cash and/or any other property, the holders of Series A Preferred Stock will not be entitled to receive any economic consideration in respect of the Series A Preferred Stock.

Transfer Restrictions

To the extent that any OpCo Units of Kodiak Services are transferred to the Company or Kodiak Services pursuant to a redemption in accordance with the OpCo LLC Agreement, then simultaneous with that transfer, an equal number of shares of Series A Preferred Stock registered in the name of the transferor will automatically and without further action on the part of the Company or that transferor be transferred to the Company and will no longer be outstanding. Subject to the foregoing and certain exceptions, the transfer of any OpCo Units pursuant to the terms of the OpCo LLC Agreement will result in the automatic transfer of an equal number of shares of Series A Preferred Stock from the same transferor to the same transferee.

Other Series of Preferred Stock

If we offer other series of Preferred Stock under this prospectus, a prospectus supplement relating to the particular series of Preferred Stock offered will include the specific terms of those Preferred Stock, including, among other things, the following:

- the designation, stated value, and liquidation preference of the Preferred Stock and the number of Preferred Stock to constitute the series;
- the number of shares of Preferred Stock to be offered;
- the public offering price at which the Preferred Stock will be issued;
- any sinking fund provisions of the Preferred Stock;
- the voting rights, if any, of the Preferred Stock;
- whether the Preferred Stock will be redeemable and, if so, the price and the terms and conditions on which the Preferred Stock may be redeemed, including the time during which the Preferred Stock may be redeemed and any accumulated dividends thereof, if any, that the holders of the Preferred Stock will be entitled to receive upon the redemption thereof;
- the terms and conditions, if any, on which the Preferred Stock will be convertible into, or exchangeable for, any other class or series, including the price or prices or the rate or rates of conversion or exchange and the method, if any, of adjusting the same; and
- any additional designations, preferences, rights, powers, duties and restrictions of the Preferred Stock.

The applicable prospectus supplement relating to any such Preferred Stock we offer will also include a discussion of certain material U.S. federal income tax consequences relating to ownership of the Preferred Stock (other than those consequences described in this prospectus).

The particular terms of any series of Preferred Stock will also be described in a certificate of designation or amendment to our charter, which will be filed as an exhibit to or incorporated by reference in this prospectus at or before the time of issuance of any such series of Preferred Stock.

The transfer agent and registrar for the any other series of Preferred Stock will be designated in the applicable prospectus supplement.

Anti-Takeover Provisions

Notwithstanding the opt out from Section 203 of the DGCL, some provisions of the Charter and the Bylaws could make certain change of control transactions more difficult, including acquisitions of the Company by means of

a tender offer, a proxy contest or otherwise. These provisions may also have the effect of preventing changes in the Board. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that stockholders may otherwise consider to be in their best interest or in the Company's best interests, including transactions that might result in a premium over the market price for our Common Stock. Therefore, these provisions could adversely affect the price of our Common Stock.

These provisions, summarized below, are intended to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to encourage persons seeking to acquire control of the Company to first negotiate with the Board. The Company believes that the benefits of increased protection and the Company's potential ability to negotiate with the proponent of an unsolicited proposal to acquire or restructure the Company arising from such provisions outweigh the disadvantages of discouraging these proposals because, among other things, negotiation of these proposals could result in an improvement of their terms.

Opt Out of Section 203 of the DGCL

In the Charter, the Company elected not to be subject to the provisions of Section 203 of the DGCL regulating corporate takeovers. In general, those provisions, if applicable, would prohibit a Delaware corporation, including those whose securities are listed for trading on the NYSE, from engaging in any business combination with any interested stockholder for a period of three years following the time that the stockholder became an interested stockholder, unless:

- the transaction that resulted in the stockholder becoming an interested stockholder, or the business combination, is approved by the board of directors before the time the interested stockholder attained that status;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced; or
- on or after the date the interested stockholder attained that status, the business combination is approved by the board of directors and authorized at a meeting of stockholders by at least two-thirds of the outstanding voting stock that is not owned by the interested stockholder.

Our Charter and Bylaws

Among other things, our Charter and Bylaws:

- establish advance notice procedures with regard to stockholder proposals relating to the nomination of candidates for election as directors or business to be brought before meetings of the Company's stockholders. These procedures provide that notice of stockholder proposals must be timely delivered to the Company's corporate secretary prior to the meeting at which the action is to be taken. Generally, to be timely in connection with an annual meeting, notice must be delivered to the Company's corporate secretary not less than 90 days nor more than 120 days prior to the first anniversary of the date of the Company's proxy statement released to the stockholders for the preceding year's annual meeting. The Bylaws specify the requirements as to form and content of such stockholders' notices. These requirements may deter stockholders from bringing matters before the stockholders at an annual or special meeting;
- authorize the Board to issue undesignated Preferred Stock. This ability makes it possible for the Board to issue, without stockholder approval, Preferred Stock with voting or other rights or preferences that could impede the success of any attempt to change control of the Company. These and other provisions may have the effect of deferring hostile takeovers or delaying changes in control or management of the Company;

- provide that, subject to the rights of any holders of Preferred Stock the authorized number of directors may be changed only by resolution of the Board;
- provide that, if EQT AB (publ), a Swedish public limited liability company, and its affiliates, subsidiaries, successors and assigns (“EQT”), beneficially owns, in the aggregate, less than 35% of the voting power of the stock of the Company entitled to vote generally in the election of directors, any action required or permitted to be taken by the stockholders of the Company must be effected at a duly called annual or special meeting of such holders and may not be effected by any consent in writing by such holders, subject to the rights of the holders of any series of Preferred Stock with respect to such series;
- provide that, subject to the Stockholders’ Agreement, all vacancies, including newly created directorships, shall, except as otherwise required with regards to rights granted to holders of Preferred Stock, except as otherwise required by law or, if applicable, the rights of holders of a series of Preferred Stock, be filled by the affirmative vote of a majority of the directors then in office, even if less than a quorum, a sole remaining director, or the stockholders and that, at any time when EQT beneficially owns, in the aggregate, less than 35% in voting power of the stock of the Company entitled to vote generally in the election of directors, all vacancies, including newly created directorships, occurring in the Board shall be filled only by a majority of the directors then in office, although less than a quorum, or by a sole remaining director (and not by stockholders);
- provide that, except as otherwise required by law and subject to the rights of the holders of any series of Preferred Stock, special meetings of the stockholders may be called only by or at the direction of the Board or the Chairman of the Board; provided, however, that at any time when EQT beneficially owns, in the aggregate, at least 35% in voting power of the stock of the Company entitled to vote generally in the election of directors, special meetings may also be called by or at the direction of the Board or the Chairman of the Board at the request of EQT;
- provide that, the Board shall be divided into three classes of directors, with each class as nearly equal in number as possible, serving staggered three-year terms, other than directors which may be elected by holders of Preferred Stock, if any and that, at any time when EQT beneficially owns, in the aggregate, less than 35% in voting power of the stock of the Company entitled to vote generally in the election of directors, directors may be removed only for cause and only by the affirmative vote of the holders of at least two thirds in voting power of all the then-outstanding shares of stock of the Company entitled to vote thereon, voting together as a single class. This system of electing and remaining directors may tend to discourage a third party from making a tender offer or otherwise attempting to obtain control of the Company because it generally makes it more difficult for stockholders to replace a majority of the directors;
- provide that, the Company generally renounces any interest or expectancy in any business opportunity (existing and future) that might be a corporate opportunity, including one that involves any aspect of the energy business or industry and that may be from time to time presented to EQT or certain other persons, and that such persons have no obligation to offer the Company those investments or opportunities;
- provide that, if EQT beneficially owns, in the aggregate, less than 35% in voting power of the stock of the Company entitled to vote generally in the election of directors, the Bylaws may be amended by stockholders, and certain provisions of the Charter may be amended, only with the affirmative vote of the holders of at least two-thirds in voting power of all the then-outstanding shares of stock of the Company entitled to vote thereon.

Forum Selection

The Charter provides that unless the Company consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware will, to the fullest extent permitted by applicable law, be the sole and exclusive forum for:

- any derivative action or proceeding brought on the Company's behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of the Company's directors, officers, or employees to the Company or the Company's stockholders;
- any action asserting a claim against the Company or any director or officer of the Company arising pursuant to any provision of the DGCL, the Charter or the Bylaws; or
- any action asserting a claim governed by the internal affairs doctrine.

The Charter further provides that, unless the Company consents in writing to the selection of an alternative forum, the federal district courts of the United States shall be the exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act or the Exchange Act.

The Charter also provides that, to the fullest extent permitted by law, any person purchasing or otherwise acquiring any interest in shares of the Company's capital stock will be deemed to have notice of, and to have consented to, these forum selection provisions. Although the Company believes these provisions benefit the Company by providing increased consistency in the application of law for the specified types of actions and proceedings, the provisions may have the effect of discouraging lawsuits against the Company's directors, officers, and employees. The enforceability of similar exclusive forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that, in connection with one or more actions or proceedings described above, a court could rule that this provision in the Charter is inapplicable or unenforceable.

Stockholders' Agreement

The Stockholders' Agreement, dated as of July 3, 2023, by and among the Company, Kodiak Holdings and the other parties thereto (the "Stockholders' Agreement"), provides that, subject to compliance with applicable law and stock exchange rules, for so long as Kodiak Holdings and its affiliates beneficially own at least 35% of the Company's Common Stock then outstanding, it shall be entitled to designate two directors to the Board; and for so long as Kodiak Holdings and its affiliates beneficially own at least 10% of the Company's Common Stock then outstanding, it shall be entitled to designate at least one director. So long as Kodiak Holdings has the right to designate directors to the Board, it will also have the right to appoint the same number of the Board observers, who will be entitled to attend all meetings of the Board in a non-voting, observer capacity.

For so long as Kodiak Holdings beneficially owns at least 35% of outstanding Common Stock, the Company and its subsidiaries may not, without the approval of Kodiak Holdings, take any of the following actions:

- change the size of the Board;
- amend, restate, modify or waive the Charter or Bylaws;
- enter into voluntary liquidation or dissolution, commence bankruptcy or insolvency proceedings, adopt a plan with respect to any of the foregoing or decide not to oppose any similar proceeding commenced by a third party;
- consummate a transaction that would result in a change of control of the Company or a sale of all or substantially all of the Company's assets;
- incur debt for borrowed money (or liens securing such debt) in excess of \$50 million, including incremental incurrences under existing debt facilities;
- authorize, create (by way of reclassification, merger, consolidation or otherwise) or issue in excess of \$25 million of any equity securities of any kind (other than pursuant to any equity compensation plan

approved by the compensation committee or intra-company issuances among the Company and its subsidiaries), including any designation of the rights (including special voting rights) of one or more classes of Preferred Stock;

- modify the Company's dividend policy; and
- sell, transfer or otherwise dispose of the Company's assets not in the ordinary course of business in a transaction or series of transactions with a fair market value in excess of \$100 million.

Limitation of Liability and Indemnification of Officers and Directors

As permitted by Section 145 of the DGCL, the Bylaws provide that:

- the Company shall indemnify the Company's directors and executive officers to the fullest extent permitted by the DGCL, subject to limited exceptions, and that the Company may indemnify other officers, employees or other agents;
- the Company shall advance expenses to the Company's directors and executive officers in connection with a legal proceeding to the fullest extent permitted by the DGCL, subject to limited exceptions; and
- the rights provided in the Bylaws are not exclusive.

Any amendment to, or repeal of, these provisions will not eliminate or reduce the effect of these provisions in respect of any act, omission or claim that occurred or arose prior to that amendment or repeal. If the DGCL is amended to provide for further limitations on the personal liability of directors or officers of corporations, then the personal liability of the Company's directors and officers will be further limited to the fullest extent permitted by the DGCL.

DESCRIPTION OF WARRANTS

We may issue Warrants for the purchase of our Common Stock, Preferred Stock or any combination thereof. Warrants may be issued independently or together with our securities offered by any prospectus supplement and may be attached to or separate from any such offered securities. Each series of Warrants will be issued under a separate warrant agreement to be entered into between us and a bank or trust company, as warrant agent, all as set forth in the prospectus supplement relating to the particular issue of Warrants. The warrant agent will act solely as our agent in connection with the Warrants and will not assume any obligation or relationship of agency or trust for or with any holders of Warrants or beneficial owners of Warrants. The following summary of certain provisions of the Warrants does not purport to be complete and is subject to, and is qualified in its entirety by reference to, all provisions of the warrant agreements.

You should refer to the prospectus supplement relating to a particular issue of Warrants for the terms of and information relating to the Warrants, including, where applicable:

- (1) the number of securities purchasable upon exercise of the Warrants and the price at which such securities may be purchased upon exercise of the Warrants;
- (2) the date on which the right to exercise the Warrants commences and the date on which such right expires (the "Expiration Date");
- (3) the United States federal income tax consequences applicable to the Warrants;
- (4) the amount of the Warrants outstanding as of the most recent practicable date; and
- (5) any other terms of the Warrants.

Warrants will be offered and exercisable for United States dollars only. Warrants will be issued in registered form only. Each Warrant will entitle its holder to purchase such number of securities at such exercise price as is in each case set forth in, or calculable from, the prospectus supplement relating to the Warrants. The exercise price may be subject to adjustment upon the occurrence of events described in such prospectus supplement. After the close of business on the Expiration Date (or such later date to which we may extend such Expiration Date), unexercised Warrants will become void. The place or places where, and the manner in which, Warrants may be exercised will be specified in the prospectus supplement relating to such Warrants.

Prior to the exercise of any Warrants, holders of the Warrants will not have any of the rights of holders of securities, including the right to receive payments of any dividends on the securities purchasable upon exercise of the Warrants, or to exercise any applicable right to vote.

DESCRIPTION OF UNITS

We may issue Units of Securities consisting of one or more of the following Securities: Common Stock, Preferred Stock, Warrants or any combination thereof. We may evidence each series of Units issued by unit certificates that we will issue under a separate agreement. We may enter into unit agreements with a unit agent. Each unit agent will be a bank or trust company that we select. You should read the particular terms of these documents, which will be described in more detail in the applicable prospectus supplement.

If we offer any Units, certain terms of that series of Units will be described in the applicable prospectus supplement, including, without limitation, the following, as applicable:

- the title of the series of Units;
- identification and description of the separate constituent securities comprising the Units;
- the price or prices at which the Units will be issued;
- the date, if any, on and after which the constituent Securities comprising the Units will be separately transferable;
- if appropriate, a discussion of material United States federal income tax considerations; and
- any other terms of the Units and their constituent Securities.

LEGAL MATTERS

Certain legal matters in connection with the Securities offered hereby will be passed upon for us by Kirkland & Ellis LLP, Houston, Texas.

EXPERTS

The consolidated financial statements of Kodiak Gas Services, Inc. as of December 31, 2023 and 2022 and for each of the three years in the period ended December 31, 2023 incorporated by reference in this Prospectus and in the Registration Statement have been so incorporated in reliance on the report of BDO USA, P.C., an independent registered public accounting firm given on the authority of said firm as experts in auditing and accounting.

The consolidated financial statements of CSI Compressco LP as of and for the years ended December 31, 2023 and 2022, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2023, incorporated by reference in this prospectus and elsewhere in the registration statement have been so incorporated by reference in reliance upon the reports of Grant Thornton LLP, independent registered public accountants, upon the authority of said firm as experts in accounting and auditing.

Part II

Information Not Required in Prospectus

Item 14. Other Expenses of Issuance and Distribution.

Set forth below are the expenses expected to be incurred in connection with the issuance and distribution of the securities registered hereby and payable by us. With the exception of the SEC registration fee, the amounts set forth below are estimates.

| | <u>Amount</u> | |
|------------------------------------|-------------------|-----------|
| SEC registration fee | \$ 227,899 | * |
| Printing and engraving expenses | — | ** |
| Fees and expenses of legal counsel | — | ** |
| Accounting fees and expenses | — | ** |
| Transfer agent and registrar fees | — | ** |
| Miscellaneous | — | ** |
| Total | \$ 227,899 | ** |

* Except with respect to the fee applicable to the shares of Common Stock to be sold by the selling stockholders, the registrant is deferring payment of the registration fee in reliance on Rule 456(b) and 457(r) under the Securities Act.

** Estimated expenses are not presently known.

Item 15. Indemnification of Directors and Officers.

Section 145 of the DGCL provides that a corporation may indemnify directors and officers as well as other employees and individuals against expenses, including attorneys' fees, judgments, fines and amounts paid in settlement in connection with specified actions, suits and proceedings whether civil, criminal, administrative, or investigative, other than a derivative action by or in the right of the corporation, if they acted in good faith and in a manner they reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe their conduct was unlawful. A similar standard is applicable in the case of derivative actions, except that indemnification extends only to expenses, including attorneys' fees, incurred in connection with the defense or settlement of such action and the statute requires court approval before there can be any indemnification where the person seeking indemnification has been found liable to the corporation. The statute provides that it is not exclusive of other indemnification that may be granted by a corporation's certificate of incorporation, bylaws, disinterested director vote, stockholder vote, agreement or otherwise.

The Charter provides that the Company's directors and officers will not be liable to the Company or its stockholders for monetary damages to the fullest extent permitted by the DGCL. Any amendment to, or repeal of, these provisions will not eliminate or reduce the effect of these provisions in respect of any act, omission or claim that occurred or arose prior to that amendment or repeal. In addition, if the DGCL is amended to authorize the further elimination or limitation of the liability of directors or officers, then the liability of a director or officer of the Company, will be limited to the fullest extent permitted by the amended DGCL. The Charter and the Bylaws provide that the Company will indemnify, and advance expenses to, any officer or director to the fullest extent authorized by the DGCL.

The Company maintains directors' and officers' insurance to cover the Company's directors, officers and some of the Company's employees for certain liabilities. In addition, the Company has entered into indemnification agreements with the Company's current and future directors and officers containing provisions that are in some respects broader than the specific indemnification provisions contained in the DGCL. The indemnification agreements will require the Company, among other things, to indemnify the Company's directors and officers against certain liabilities that may arise by reason of their status or service as directors or officers and to advance their expenses incurred as a result of any proceeding against them as to which they could be indemnified.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling the Company pursuant to the foregoing provisions, the Company has been informed that in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 16. Exhibits and Financial Statement Schedules.

(a) *Exhibits.*

Exhibit Index

| Exhibit No. | Description |
|--------------------|---|
| 1.1* | Form of Underwriting Agreement |
| 4.1 | Certificate of Designations of Series A Preferred Stock of Kodiak Gas Services, Inc. (incorporated by reference to Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed with the SEC on April 1, 2024) |
| 4.2 | Registration Rights Agreement, dated as of July 3, 2023, by and among Kodiak Gas Services, Inc., Frontier TopCo Partnership, L.P. and each of the other signatories from time to time party thereto (incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed with the SEC on July 5, 2023) |

| | |
|--------|--|
| 4.3 | Stockholders' Agreement, dated as of July 3, 2023, by and among Kodiak Gas Services, Inc. and Frontier TopCo Partnership, L.P. (incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed with the SEC on July 5, 2023) |
| 4.4* | Form of Certificate of Designations for Preferred Stock |
| 4.5* | Form of Warrant Agreement (including form of Warrant Certificate) |
| 4.6* | Form of Unit Agreement (including form of Unit Certificate) |
| 5.1** | Opinion of Kirkland & Ellis LLP |
| 23.1** | Consent of BDO USA, P.C. |
| 23.2** | Consent of Grant Thornton LLP |
| 23.3** | Consent of Kirkland & Ellis LLP (included in their opinion filed as Exhibit 5.1) |
| 24.1** | Powers of Attorney (included on signature page) |
| 107** | Filing Fee Table |

* To be filed, if necessary, as an exhibit to a post-effective amendment to this registration statement or as an exhibit to a Current Report on Form 8-K and incorporated by reference herein.

** Filed herewith.

Item 17. Undertakings.

The undersigned registrant hereby undertakes:

(a) to file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

- (i) to include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
- (ii) to reflect in the prospectus any facts or events arising after the effective date of this registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in this registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the SEC pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and
- (iii) to include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that paragraphs (a)(i), (a)(ii) and (a)(iii) do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(b) that, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof;

- (c) to remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering;
- (d) that, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:
 - (i) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (ii) each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof; *provided, however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date; and
- (e) that, for the purpose of determining liability of the registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities, the undersigned registrant undertakes that in a primary offering of securities of such undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, such undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:
 - (i) any preliminary prospectus or prospectus of such undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) any free writing prospectus relating to the offering prepared by or on behalf of such undersigned registrant or used or referred to by such undersigned registrant;
 - (iii) the portion of any other free writing prospectus relating to the offering containing material information about such undersigned registrant or its securities provided by or on behalf of such undersigned registrant; and
 - (iv) any other communication that is an offer in the offering made by such undersigned registrant to the purchaser.

The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions described under Item 15 above, 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 of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the 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, the registrant will, unless in the opinion of its counsel the matter 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 of 1933 and will be governed by the final adjudication of such issue.

The undersigned hereby undertakes to file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act of 1939, as amended (the "Trust Indenture Act"), in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Trust Indenture Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all the requirements for filing on Form S-3 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of The Woodlands, State of Texas, on July 9, 2024.

Kodiak Gas Services, Inc.

By: /s/ Robert M. McKee
Name: Robert M. McKee
Title: President and Chief Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below hereby constitutes and appoints Robert M. McKee, Kelly M. Battle and John B. Griggs as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution for him or her in any and all capacities, to sign any or all amendments or post-effective amendments to this Registration Statement, or any Registration Statement for the same offering that is to be effective upon filing pursuant to Rule 462(b) under the Securities Act, and to file the same, with exhibits hereto and other documents in connection therewith or in connection with the registration of the securities under the Securities Act, with the SEC, granting unto such attorneys-in-fact and agents full power and authority to do and perform each and every act and thing requisite and necessary in connection with such matters and hereby ratifying and confirming all that such attorneys-in-fact and agents or any of them or their substitutes may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act, this registration statement has been signed by the following persons in the capacities indicated below as of July 9, 2024.

| Signature | Title |
|--|---|
| /s/ Robert M. McKee Robert M. McKee | President, Chief Executive Officer and Director (Principal Executive Officer) |
| /s/ John B. Griggs John B. Griggs | Executive Vice President and Chief Financial Officer (Principal Financial Officer) |
| /s/ Ewan W. Hamilton Ewan W. Hamilton | Executive Vice President and Chief Accounting Officer (Principal Accounting Officer) |
| /s/ Terry Bonno Terry Bonno | Director |
| /s/ Alex Darden Alex Darden | Director |
| /s/ Christopher Drumgoole Christopher Drumgoole | Director |
| /s/ Jon-Al Duplantier Jon-Al Duplantier | Director |
| /s/ Randall Hogan Randall Hogan | Director |
| /s/ Gretchen Holloway Gretchen Holloway | Director |
| /s/ Margaret C. Montana Margaret C. Montana | Director |
| /s/ Nirav Shah Nirav Shah | Director |

Calculation of Filing Fee Tables

Form S-3ASR
(Form Type)Kodiak Gas Services, Inc.
(Exact Name of Registrant as Specified in its Charter)

Table 1: Newly Registered and Carry Forward Securities

| Security Type | Security Class Title | Fee Calculation or Carry Forward Rule | Amount Registered | Proposed Maximum Offering Price Per Unit | Maximum Aggregate Offering Price | Fee Rate | Amount of Registration Fee | Carry Forward Form Type | Carry Forward File Number | Carry Forward Initial Effective Date | Filing Fee Previously Paid In Connection with Unsold Securities to be Carried Forward |
|------------------------------------|----------------------|---|---------------------------|--|----------------------------------|------------|----------------------------|-------------------------|---------------------------|--------------------------------------|---|
| Newly Registered Securities | | | | | | | | | | | |
| Fees to be Paid | Equity | Common Stock, \$0.01 par value per share ⁽¹⁾ | (3) | (3) | (3) | (2) | (2) | | | | |
| | Equity | Preferred Stock ⁽¹⁾ | (3) | (3) | (3) | (2) | (2) | | | | |
| | Other | Warrants ⁽¹⁾ | (3) | (3) | (3) | (2) | (2) | | | | |
| | Other | Units ⁽¹⁾ | (3) | (3) | (3) | (2) | (2) | | | | |
| | Equity | Common Stock, par value \$0.01 per share | 59,000,000 ⁽⁴⁾ | | \$1,544,030,000 ⁽⁶⁾ | 0.00014760 | \$227,899 ⁽⁶⁾ | | | | |
| Fees Previously Paid | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| Carry Forward Securities | | | | | | | | | | | |
| Carry Forward Securities | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | Total Offering Amounts | | | | | \$227,899 | | | | |
| | | Total Fees Previously Paid | | | | | N/A | | | | |
| | | Total Fee Offsets | | | | | \$234,910 ⁽⁷⁾ | | | | |
| | | Net Fee Due | | | | | \$-- | | | | |

(1) Separate consideration may or may not be received for securities that are issuable upon exercise, conversion or exchange of other securities.

(2) The Registrant is relying on Rule 456(b) and Rule 457(r) under the Securities Act of 1933, as amended (the "Securities Act"), to defer payment of all registration fees. In connection with the securities offered hereby, the Registrant will pay "pay-as-you-go registration fees" in accordance with Rule 456(b). The Registrant will calculate the registration fee applicable to an offer of securities pursuant to this Registration Statement based on the fee payment rate in effect on the date of such fee payment.

(3) An indeterminate aggregate amount or number of securities of each class is being registered hereunder, as may from time to time be offered, at indeterminate prices. Securities registered hereunder may be sold separately, together or as units with other securities registered hereunder. The indeterminate aggregate amount or number also includes such securities as may, from time to time, be issued upon conversion or exchange of securities registered hereunder, to the extent any such securities are, by their terms, convertible into or exchangeable for other securities.

- (4) Consists of a maximum of 59,000,000 shares of common stock, par value \$0.01 per share (“common stock”), of the Registrant to be sold by the selling stockholder. Pursuant to Rule 416 under the Securities Act, this registration statement shall also cover any additional shares of the Registrant’s common stock that shall become issuable by reason of any stock dividend, stock split, recapitalization, or other similar transaction effected without the receipt of consideration that results in an increase in the number of the outstanding shares of the Registrant’s common stock.
- (5) With respect to the offering of shares of our common stock by the selling stockholder, the proposed maximum offering price per share will be delivered from time to time in connection with, and at the time of, a sale by the selling stockholder.
- (6) Estimated solely for the purposes of computing the registration fee in accordance with pursuant to Rule 457(c) under the Securities Act, based upon \$26.17, the average of the high and low prices of the Registrant’s common stock as quoted on the New York Stock Exchange on July 9, 2024 (a date within five business days prior to the filing of this Registration Statement).
- (7) The Registrant previously paid filing fees of \$234,910 in connection with the Registration Statement on Form S-3 (File No. 333-280710) (the “Prior Registration Statement”) filed on July 5, 2024, which Prior Registration Statement was withdrawn on July 9, 2024 pursuant to Rule 477 under the Securities Act. No securities were sold under the Prior Registration Statement before it was withdrawn. Pursuant to Rule 457(p) under the Securities Act, the Registrant will offset such amount of previously paid filing fees against filing fees due in connection with this Registration Statement.

Table 2: Fee Offset Claims and Sources

| Registrant or Filer Name | Form or Filing Type | File Number | Initial Filing Date | Filing Date | Fee Offset Claimed | Security Type Associated with Fee Offset Claimed | Security Title Associated with Fee Offset Claimed | Unsold Securities Associated with Fee Offset Claimed | Unsold Aggregate Offering Amount Associated with Fee Offset Claimed | Fee Paid with the Fee Offset Source |
|--------------------------|---------------------------|-------------|---------------------------|--------------|--------------------|--|---|--|---|-------------------------------------|
| | | | | | | | | | | |
| Fee Offset Claims | | | | | | | | | | |
| Fee Offset Sources | | | | | | | | | | |
| Rule 457(p) | | | | | | | | | | |
| Fee Offset Claims | Kodiak Gas Services, Inc. | Form S-3 | 333-280710 ⁽¹⁾ | July 5, 2024 | \$234,910 | Equity | Common Stock, par value \$0.01 per share | 59,000,000 | \$1,591,525,000 | |
| Fee Offset Sources | Kodiak Gas Services, Inc. | Form S-3 | 333-280710 ⁽¹⁾ | July 5, 2024 | | | | | | \$234,910 |

- (1) The Registrant paid a registration fee of \$234,910 in connection with the registration of \$1,591,525,000 of shares of common stock under the Prior Registration Statement. The Prior Registration Statement was withdrawn by filing a Form RW on July 9, 2024. In accordance with Rule 457(p) under the Securities Act, the Registrant is using \$227,899 of the aforementioned unused filing fees previously paid by the Registrant in connection with filing the Prior Registration Statement to offset the entirety of the filing fee payable in connection with this Registration Statement, and as a result of such offset, the Registrant will have \$7,011 remaining in unused filing fees available to be applied to its future filings.

KIRKLAND & ELLIS LLP

AND AFFILIATED PARTNERSHIPS

609 Main Street
Houston, TX 77002
United States

+1 713 836 3600

www.kirkland.com

July 9, 2024

Kodiak Gas Services, Inc.
9950 Woodlock Forest Drive, Suite 1900
The Woodlands, Texas 77380

Re: Registration Statement on Form S-3ASR

We are issuing this opinion in our capacity as legal counsel to Kodiak Gas Services, Inc., a Delaware corporation (the “Company”), in connection with the proposed registration by the Company under the Securities Act of 1933, as amended (the “Act”), on a Registration Statement on Form S-3ASR and the documents incorporated by reference therein, filed with the Securities and Exchange Commission on July 9, 2024 (as such registration statement is amended or supplemented, the “Registration Statement”) for: (i) the offer and sale from time to time pursuant to Rule 415 under the Act of common stock, par value \$.01 per share (“Common Stock”), preferred stock, par value \$0.01 per share (“Preferred Stock”), warrants to purchase Common Stock or Preferred Stock or any combination thereof (the “Warrants”), and units consisting of two or more securities of the Company (“Units”, together with the Common Stock, Preferred Stock and Warrants, the “Primary Securities”); and (ii) the sale from time to time by the Selling Stockholders of up to 59,000,000 shares of Common Stock (the “Secondary Securities”). The Primary Securities may be issued by the Company either together or separately in connection with an offering or offerings from time to time pursuant to the Registration Statement and will be offered on terms set forth in the Registration Statement and in the prospectus contained in the Registration Statement (the “Prospectus”) and in amounts, at prices and on other terms to be determined by the Company at the time of offering and to be set forth in an amendment or amendments to the Registration Statement and the Prospectus and in one or more supplements to the Prospectus (each, a “Prospectus Supplement”). The Primary Securities together with the Secondary Securities are referred to herein as the “Securities”.

You have advised us that (i) the Warrants will be issued under a Warrant Agreement (the “Warrant Agreement”), between the Company and a warrant agent named therein, and (ii) the Units will be issued under a Unit Purchase Agreement (the “Units Agreement”), between the Company and the other parties named therein. The Warrant Agreement and the Units Agreement are referred to herein as “Governing Documents”. The Governing Documents will be executed and filed in an amendment to the Registration Statement (or incorporated by reference into the Registration Statement) prior to the offering of any such Securities.

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Kodiak Gas Services, Inc.
July 9, 2024
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The Registration Statement provides that the Company and the Selling Stockholders may sell the Securities registered thereby (i) through underwriters or dealers, (ii) directly to one or more other purchasers, (iii) through agents or (iv) to both investors and/or dealers through a specific bidding or auction process or otherwise. The applicable Prospectus Supplement with respect to the Securities offered will set forth the terms of the offering of such Securities, including the name or names of any underwriters, dealers or agents, the purchase price of such Securities and the proceeds to the Company from such sale, any underwriting discounts and other items constituting underwriters' compensation, any initial public offering price and any discounts, commissions or concessions allowed or reallocated or paid to dealers, and any bidding or auction process. If underwriters are used in an offering of Securities registered by the Registration Statement, the Registration Statement anticipates that the Company or the Selling Stockholders, as applicable, will sell such Securities pursuant to the terms of an underwriting agreement to be executed between the Company, the Selling Stockholders and underwriters, as applicable, that will be identified in the applicable Prospectus Supplement. The underwriting agreement will be executed and filed as an exhibit to the Registration Statement (or incorporated by reference into the Registration Statement) and we have assumed for purpose of this letter that the terms of such agreement will fall within the scope of the authorization adopted by the Company's Board of Directors and will receive the approvals required by that Board authorization prior to the sale of any Securities. The term "Underwriting Agreement" is used in this letter to mean an underwriting agreement in the form in which it will be actually executed by the Company and the underwriters with respect to a particular underwritten offering of Securities registered by the Registration Statement.

In connection therewith, we have examined originals, or copies certified or otherwise identified to our satisfaction, of such documents, corporate records and other instruments as we have deemed necessary for the purpose of this opinion, including (i) the corporate and organizational documents of the Company; (ii) minutes and records of the corporate proceedings of the Company with respect to the issuance and sale of the Securities and (iv) the Registration Statement.

For purposes of this opinion, we have assumed the authenticity of all documents submitted to us as originals, the conformity to the originals of all documents submitted to us as copies and the authenticity of the originals submitted to us as copies. We have also assumed the legal capacity of all natural persons, the genuineness of the signatures of persons signing all documents in connection with which this opinion is rendered, the authority of such persons signing on behalf of the parties thereto (other than the Company), and the due authorization, execution and delivery of all documents by the parties thereto (other than the Company). As to

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Kodiak Gas Services, Inc.

July 9, 2024

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any facts material to the opinions expressed herein which we have not independently established or verified, we have relied upon statements and representations of officers and other representatives of the Company and others.

We have also assumed that:

- (i) the Registration Statement shall have become effective pursuant to the provisions of the Act and will remain effective and comply with all applicable laws at the time the Securities are offered or issued as contemplated the Registration Statement;
 - (ii) a Prospectus Supplement or Prospectus Supplements with respect to the shares of Common Stock shall have been filed (or transmitted for filing) with the Commission pursuant to Rule 424(b) of the Act and any exhibits necessary under the rules and regulations of the Commission shall have been filed with the Commission in an amendment to the Registration Statement or incorporated by reference into the Registration Statement pursuant to a Current Report on Form 8-K of the Company filed with the Commission and will comply with all applicable laws;
 - (iii) the Securities will be issued and sold in the manner stated in the Registration Statement, and in the form and containing the terms set forth in the Registration Statement and, as applicable, the Governing Document;
 - (iv) a definitive Underwriting Agreement will have been duly authorized and validly executed and delivered by the Company and the other parties thereto;
 - (v) the terms of the (a) Warrant Agreement or (b) Units Agreement, each as applicable to the particular Securities, are consistent with the description of the terms of such agreement set forth in the Registration Statement and in the Prospectus;
 - (vi) appropriate corporate action shall have been taken to authorize the issuance and sale of, and such authorization will not have been modified or rescinded;
-

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Kodiak Gas Services, Inc.

July 9, 2024

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- (vii) any Securities issuable upon conversion, exchange, or exercise of any Security being offered or issued will be duly authorized, created and, if appropriate, reserved for issuance upon such conversion, exchange or exercise;
- (viii) the issuance, sale and delivery of the Securities, the terms of the Securities and compliance by the Company with the terms of the Securities will not violate any applicable law, any agreement or instrument then binding upon the Company or any restriction imposed by any court or governmental body having jurisdiction over the Company;
- (ix) any legally required consents, approvals, authorizations and other orders of the Commission and any other regulatory authorities shall have been obtained;
- (x) there will not have occurred any change in law affecting the validity, legally binding character or enforceability of the Securities; and
- (xi) appropriate certificates representing the shares of Common Stock will have been duly executed, countersigned by the Company's transfer agent/registrar, registered and delivered against payment of the agreed consideration therefor in accordance with the applicable Agreement.

Based upon and subject to the assumptions, qualifications and limitations identified in this opinion, we are of the opinion that:

(1) The Common Stock, when delivered and paid for in accordance with the Underwriting Agreement, will be validly issued, fully paid, and nonassessable.

(2) The Preferred Stock, when delivered and paid for in accordance with the Underwriting Agreement, will be validly issued, fully paid, and nonassessable.

(3) When the Warrants have been duly executed, delivered and paid for in accordance with the Underwriting Agreement, and the Warrant Agreement has been duly authorized, executed and delivered by the Company and warrant

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Kodiak Gas Services, Inc.

July 9, 2024

Page 5

agent, the Warrants will constitute the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms.

(4) When the Units have been delivered and paid for in accordance with the Underwriting Agreement, the Units Agreement has been duly authorized, executed and delivered by the Company and the rights agent, the Common Stock issuable upon exercise of the Units has been duly authorized and reserved for issuance by all necessary corporate or organizational action, and the Units will constitute the legal, valid and binding obligations of the Company, enforceable against the Company in accordance with their terms

(5) Each opinion in this letter that any particular contract constitutes a valid and binding agreement or is enforceable in accordance with its terms (each, an “enforceability opinion”) is subject to: (i) the effect of bankruptcy, insolvency, fraudulent conveyance and other similar laws and judicially developed doctrines in this area such as substantive consolidation and equitable subordination; (ii) the effect of general principles of equity; and (iii) other commonly recognized statutory and judicial constraints on enforceability including statutes of limitations. “General principles of equity” include but are not limited to: (A) principles limiting the availability of specific performance and injunctive relief; (B) principles which limit the availability of a remedy under certain circumstances where another remedy has been elected; (C) principles requiring reasonableness, good faith and fair dealing in the performance and enforcement of an agreement by the party seeking enforcement; (D) principles which may permit a party to cure a material failure to perform its obligations; and (E) principles affording equitable defenses such as waiver, laches and estoppel. It is possible that terms in a particular contract covered by our enforceability opinion may not prove enforceable for reasons other than those explicitly cited in this letter should an actual enforcement action be brought, but (subject to all the exceptions, qualifications, exclusions and other limitations contained in this letter) such unenforceability would not in our opinion prevent the party entitled to enforce that contract from realizing the principal benefits purported to be provided to that party by the terms in that contract which are covered by our enforceability opinion. In addition, none of the opinions or other advice contained in this letter covers or otherwise addresses any of the following types of provisions (or the enforceability thereof) which may be contained in the Governing Documents: (i) provisions mandating contribution towards judgments or settlements among

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Kodiak Gas Services, Inc.

July 9, 2024

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various parties; (ii) waivers of benefits and rights to the extent they cannot be waived under applicable law; (iii) provisions providing for liquidated damages, late charges and prepayment charges, in each case if deemed to constitute penalties; (iv) provisions which might require indemnification or contribution in violation of general principles of equity or public policy, including, without limitation, indemnification or contribution obligations which arise out of the failure to comply with applicable state or federal securities laws, rules or regulations; or (v) requirements in the Governing Documents specifying that provisions thereof may only be waived in writing (these provisions may not be valid, binding or enforceable to the extent that an oral agreement or an implied agreement by trade practice or course of conduct has been created modifying any provision of such documents).

Our advice on every legal issue addressed in this opinion is based exclusively on the internal law of New York and the General Corporation Law of the State of Delaware. We do not find it necessary for the purposes of this opinion, and accordingly we do not purport to cover herein, the application of the securities or “Blue Sky” laws of the various states to the issuance of the Securities.

This opinion is limited to the specific issues addressed herein, and no opinion may be inferred or implied beyond that expressly stated herein. This opinion speaks only as of the date that the Registration Statement becomes effective under the Act, and we assume no obligation to revise or supplement this opinion should the present laws of the State of New York or the General Corporation Law of the State of Delaware be changed by legislative action, judicial decision or otherwise after the date hereof.

This opinion is furnished to you in connection with the filing of the Registration Statement and is not to be used, circulated, quoted or otherwise relied upon for any other purposes.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement. We also consent to the reference to our firm under the heading “Legal Matters” in the Registration Statement. In giving this consent, we do not thereby admit that we are in the category of persons whose consent is required under Section 7 of the Act of the rules and regulations of the Commission.

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Kodiak Gas Services, Inc.
July 9, 2024
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Very truly yours,

/s/ Kirkland & Ellis LLP
KIRKLAND & ELLIS LLP

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Prospectus constituting a part of this Registration Statement of our report dated March 7, 2024, relating to the consolidated financial statements of Kodiak Gas Services, Inc. (the Company) appearing in the Company's Annual Report on Form 10-K for the year ended December 31, 2023.

We also consent to the reference to us under the caption "Experts" in the Prospectus.

/s/ BDO USA, P.C.
Houston, Texas

July 9, 2024

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated March 1, 2024, with respect to the consolidated financial statements and internal control over financial reporting of CSI Compressco, LP included in its Annual Report on Form 10-K for the year ended December 31, 2023, and incorporated by reference in this Registration Statement of Kodiak Gas Services, Inc. on Form S-3. We consent to the incorporation by reference of the aforementioned reports in the Registration Statement of Kodiak Gas Services, Inc.

/s/ GRANT THORNTON LLP

Houston, Texas
July 9, 2024