

PROSPECTUS SUPPLEMENT
(To Prospectus dated November 25, 2025)



HighPeak Energy, Inc.

Up to \$150,000,000

Common Stock

We have entered into a sales agreement, dated May 6, 2026 (the "Sales Agreement"), with Roth Capital Partners, LLC as lead agent (Roth or the "Lead Agent") and USCA Securities LLC ("USCA") (each of Roth and USCA, an "Agent" and together, the "Agents"), relating to shares of our common stock offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock from time to time through the Lead Agent. This prospectus supplement is offering shares of our common stock having an aggregate offering price of \$150 million.

Shares of our common stock trade on the Nasdaq Global Market ("Nasdaq"), under the symbol "HPK." On May 5, 2026, the last sale price of the shares as reported on Nasdaq was \$6.79 per share.

Sales of our common stock, if any, pursuant to this prospectus supplement and the accompanying prospectus will be made in any method permitted by law deemed to be an "at the market offering" as defined in Rule 415 under the Securities Act of 1933, as amended (the "Securities Act"). The Lead Agent will make all sales using commercially reasonable efforts consistent with its normal sales and trading practices on terms mutually agreed upon between Lead Agent and us.

The compensation to the Agents for sales of our common stock pursuant to the Sales Agreement will be an amount up to 3.00% of the gross sales price of all common stock sold thereunder. In connection with the sale of the common stock on our behalf, the Agents will be deemed to be an "underwriter" within the meaning of the Securities Act, and the compensation of the Agents will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to the Agents with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the "Exchange Act").

Investing in our common stock involves risks. See "Risk Factors" beginning on page S-3 of this prospectus supplement and on page 2 of the accompanying prospectus for information regarding risks you should consider before investing in our common stock.

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

Roth Capital Partners

USCA Securities

The date of this prospectus supplement is May 6, 2026

TABLE OF CONTENTS

Prospectus Supplement

ABOUT THIS PROSPECTUS SUPPLEMENT	S-iii
CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS	S-iv
SUMMARY	S-1
THE OFFERING	S-2
RISK FACTORS	S-3
USE OF PROCEEDS	S-4
PLAN OF DISTRIBUTION	S-5
MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS	S-6
LEGAL MATTERS	S-10
EXPERTS	S-10
WHERE YOU CAN FIND MORE INFORMATION	S-10
DOCUMENTS INCORPORATED BY REFERENCE	S-10

Base Prospectus

ABOUT THIS PROSPECTUS	ii
WHERE YOU CAN FIND MORE INFORMATION	iii
DOCUMENTS INCORPORATED BY REFERENCE	1
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT HIGHPEAK ENERGY, INC.	4
RISK FACTORS	5
USE OF PROCEEDS	6
DESCRIPTION OF SECURITIES	7
PLAN OF DISTRIBUTION	10
LEGAL MATTERS	12
EXPERTS	12

Resale Prospectus

ABOUT THIS PROSPECTUS	ii
WHERE YOU CAN FIND MORE INFORMATION	iii
DOCUMENTS INCORPORATED BY REFERENCE	1
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT HIGHPEAK ENERGY, INC.	4
RISK FACTORS	5
USE OF PROCEEDS	6
DESCRIPTION OF SECURITIES	7
SELLING SECURITYHOLDERS	10
PLAN OF DISTRIBUTION	12
LEGAL MATTERS	15
EXPERTS	15

ABOUT THIS PROSPECTUS SUPPLEMENT

This document is in two parts. The first part, the prospectus supplement, including the documents incorporated by reference therein, describes the specific terms of this offering and certain matters relating to us. The second part, the accompanying prospectus, including the documents incorporated by reference therein, provides more general information, some of which may not apply to this offering. The accompanying prospectus was filed as part of our registration statement on Form S-3 (Registration No. [333-291266](#)) with the Securities and Exchange Commission (the “SEC”) on November 4, 2025, as part of a “shelf” registration process and became effective on November 25, 2025. Under the shelf registration process, we may sell our common stock in one or more offerings. Generally, when we refer to this prospectus supplement, we are referring to both parts of this document combined. We urge you to read carefully this prospectus supplement, the accompanying prospectus, the information incorporated by reference herein and therein, and any free writing prospectus that we authorize to be distributed to you before buying our common stock being offered under this prospectus supplement. This prospectus supplement may supplement, update or change information contained in the accompanying prospectus. To the extent that any statement that we make in this prospectus supplement is inconsistent with statements made in the accompanying prospectus or any documents incorporated by reference therein, the statements made in this prospectus supplement will be deemed to modify or supersede those made in the accompanying prospectus and such documents incorporated by reference therein.

Neither we, nor the Agents, have authorized anyone to provide you with information that is different from that contained in or incorporated by reference into this prospectus supplement or the accompanying prospectus or in any free writing prospectus we may authorize to be delivered or made available to you. We take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide to you. If information in this prospectus supplement is inconsistent with the accompanying prospectus, you should rely on this prospectus supplement. Neither we, nor the Agents, are making an offer of these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information provided by this prospectus supplement, the accompanying prospectus or the documents incorporated by reference herein or therein is accurate as of any date other than the respective dates of such documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

Before you invest in our common stock, you should carefully read the registration statement described in the accompanying prospectus (including the exhibits thereto) of which this prospectus supplement and the accompanying prospectus form a part, as well as this prospectus supplement, the accompanying prospectus and the documents incorporated by reference herein and therein. The documents incorporated by reference into this prospectus supplement are described under “Documents Incorporated by Reference.”

Except as expressly stated or the context otherwise requires, the terms “we,” “us,” “our,” “HPK,” and the “Company” refer to HighPeak Energy, Inc.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus supplement and the documents to which the Company refers you to in this prospectus supplement, as well as oral statements made or to be made by the Company, includes “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”), and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). All statements other than statements of historical facts included or incorporated by reference in this prospectus supplement, including, without limitation, statements regarding the Company’s future financial position, business strategy, budgets, projected revenues, projected costs, and plans and objectives of management for future operations, are forward-looking statements. Such forward-looking statements are based on the beliefs of management, as well as assumptions made by, and information currently available to, the Company’s management. In addition, forward-looking statements generally can be identified by the use of forward-looking terminology such as “believes,” “plans,” “expects,” “anticipates,” “forecasts,” “intends,” “continue,” “may,” “will,” “could,” “should,” “future,” “potential,” “estimate” or the negative of such terms and similar expressions as they relate to the Company are intended to identify forward-looking statements, which are generally not historical in nature. The forward-looking statements are based on the Company’s current expectations, assumptions, estimates and projections about the Company and the industry in which the Company operates. Although the Company believes that the expectations and assumptions reflected in the forward-looking statements are reasonable as and when made, they involve risks and uncertainties that are difficult to predict and, in many cases, beyond the Company’s control. In addition, the Company may be subject to currently unforeseen risks that may have a materially adverse effect on it. Accordingly, no assurances can be given that the actual events and results will not be materially different from the anticipated results described in the forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date hereof. The Company undertakes no duty to publicly update these statements except as required by law. Important factors that could cause actual results to differ materially from the Company’s expectations include, but are not limited to, the Company’s assumptions about:

- the supply and demand for and market prices of crude oil, NGL, natural gas and other products or services, and the associated impact of our hedging policies relating thereto;
- the results of our ongoing strategic alternatives review process;
- inflation rates and the impacts of associated monetary policy responses, including increased or decreased interest rates and resulting pressures on economic growth, U.S. trade policy and the imposition of and changes to tariffs;
- political instability or armed conflict in crude oil or natural gas producing regions, such as the ongoing war between Russia and Ukraine, conflicts in the Middle East and U.S. intervention in Venezuela;
- volatility in the political, legal and regulatory environments, including the effects of a prolonged U.S. government shutdown;
- political and regulatory uncertainties;
- our liquidity, cash flow and access to capital, including our ability to access such markets on attractive terms or at all, and related risks such as general credit, liquidity, market and interest-rate risks;
- the availability of capital resources;
- our ability to maintain compliance with the covenants in our debt agreements and refinance or pay, when due, the principal of, interest or other amounts due in respect of our indebtedness;
- production and reserve levels;
- drilling and completion risks;
- economic and competitive conditions;

- the impacts of revising our drilling plan during the year transitioning to an increased or decreased rig count from time to time;
- severe weather conditions;
- epidemics or pandemics, including the effects of related public health concerns and the impact of continued actions taken by governmental authorities and other third parties in response to pandemics and their impact on commodity prices, supply and demand considerations, and storage capacity;
- the availability of goods and services and supply chain issues;
- regulatory and related policy actions intended by federal, state and/or local governments to reduce fossil fuel use and associated carbon emissions, to drive the substitution of renewable forms of energy for crude oil and natural gas, which may over time reduce demand for crude oil, NGL and natural gas;
- our ability to predict and manage the effects of actions of OPEC and its non-OPEC allies, known collectively as OPEC+, and agreements to set and maintain production levels;
- recent management changes;
- cyber-attacks;
- occurrence of property acquisitions or divestitures;
- the integration of acquisitions; and
- other risks set forth in our Annual Report on Form 10-K for the year ended December 31, 2025, any subsequently filed Quarterly Report on Form 10-Q and the other reports we file with the SEC that are incorporated by reference into this prospectus supplement; and
- other risks set forth under “Risk Factors” and certain factors discussed elsewhere in this prospectus supplement.

In light of these risks and uncertainties, you are cautioned not to put undue reliance on any forward-looking statements in this prospectus supplement. These statements should be considered only after carefully reading this entire prospectus supplement and our filings with the SEC. Except as required under the federal securities laws and rules and regulations of the SEC, we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise. Additional risks that we may currently deem immaterial or that are not presently known to us could also cause the forward-looking events discussed in this prospectus supplement not to occur.

All forward-looking statements, expressed or implied, included in this prospectus supplement 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 statement that we or persons acting on our behalf may issue.

SUMMARY

This summary highlights selected information contained elsewhere or incorporated by reference in this prospectus supplement and does not contain all the information that you need to consider in making your investment decision. You should carefully read this entire prospectus supplement and the accompanying prospectus, as well as the information to which we refer you and the information incorporated by reference herein, before deciding whether to invest in our common stock.

HighPeak Energy, Inc.

HighPeak Energy, Inc., a Delaware corporation formed on October 29, 2019, is an independent crude oil and natural gas exploration and production company that explores for, develops and produces crude oil, NGL and natural gas in the Permian Basin in West Texas, more specifically, the Midland Basin primarily in Howard and Borden Counties, Texas, and to a lesser extent Scurry and Mitchell Counties, which lie within the northeastern part of the crude oil-rich Midland Basin. Our acreage is composed of two core areas, Flat Top primarily in the northern portion of Howard County extending into southern Borden County, southwest Scurry County and northwest Mitchell County and Signal Peak in the southern portion of Howard County.

HighPeak Energy focuses on the Midland Basin primarily in northeast Howard and southeast Borden Counties, and to a lesser extent, northwest Mitchell and southwest Scurry Counties. Over the last eight decades this area of the Midland Basin was partially developed with vertical wells using conventional methods, and during the last decade has experienced significant redevelopment activity in the Lower Spraberry and Wolfcamp A formations utilizing modern horizontal drilling technology, with some operators having additional success developing the Middle Spraberry, Jo Mill, Wolfcamp B and Wolfcamp D formations, through the use of modern, high-intensity hydraulic fracturing techniques, decreased frac spacing, increased proppant usage and increased lateral lengths. Our interpretation of available IHS Markit data as well as our own drilling and completion results show that this area has a high crude oil mix percentage.

The Company's assets include certain rights, title and interests in crude oil and natural gas assets located primarily in Howard and Borden Counties, Texas, and to a lesser extent, Mitchell and Scurry Counties, Texas. As of December 31, 2025, the Company's assets consisted of two generally contiguous leasehold positions of approximately 152,201 gross (140,439 net) acres covering various subsurface depths, approximately 74% of which were held by production, with an average working interest of approximately 92%. We operate approximately 98% of the net acreage across the Company's assets. The majority of HighPeak Energy's horizontal development drilling plan is currently focused on the Wolfcamp A, Lower Spraberry and Middle Spraberry formations. We utilize multi-well pad development to lower drilling and completion cycle times and create infrastructure and facility economies of scale to reduce overall costs, optimize and maximize crude oil and natural gas recoveries, return on investment and value creation.

Our headquarters are located at 421 W. 3rd St., Suite 1000, Fort Worth, Texas 76102, and our telephone number is (817) 850-9200. Our website address is <http://www.highpeakenergy.com>. References to our website are provided as a convenience and do not constitute, and should not be deemed, an incorporation by reference of the information contained on, or available through, the website, and such information should not be considered part of this prospectus supplement.

THE OFFERING

Issuer	HighPeak Energy, Inc.
Common stock offered by us	Shares of our common stock having an aggregate offering price of up to \$150 million.
Manner of offering	<p>“At the market offering” that may be made from time to time through the Lead Agent. Please read “Plan of Distribution” in this prospectus supplement for more information.</p> <p>We currently plan to use the net proceeds from this offering, after deducting the Agents’ commissions and offering expenses payable by us, for general corporate purposes, which may include, among other things, paying or refinancing all or a portion of our then-outstanding indebtedness. Please read “Use of Proceeds” in this prospectus supplement for more information.</p>
Use of proceeds	
Exchange listing and symbol	Our common stock is listed on Nasdaq under the symbol “HPK”
Material U.S. federal income tax considerations for non-U.S. holders	<p>The material U.S. federal income tax considerations generally applicable to the purchase, ownership and disposition of our common stock acquired in this offering by a non-U.S. holder (as defined in “Material U.S. Federal Income Tax Considerations for Non-U.S. Holders”) are described in “Material U.S. Federal Income Tax Considerations for Non-U.S. Holders.” Each non-U.S. holder is urged to consult its own tax advisors regarding the U.S. federal, state and local, and non-U.S. income and other tax consequences to it of purchasing, owning and disposing of our common stock.</p> <p>Investing in our common stock involves risks. Please read “Risk Factors” on page S-3 of this prospectus supplement, page 2 of the accompanying prospectus and in the documents that we have incorporated by reference, as well as the other cautionary statements throughout this prospectus supplement and the accompanying prospectus, for a discussion of factors you should carefully consider before deciding to invest in our common stock</p>
Risk factors	

RISK FACTORS

You should carefully consider the risks described below together with the risk factors described in reports we file with the SEC and incorporated by reference into the accompanying prospectus, as well as all of the other information in, and incorporated by reference into, this prospectus supplement and the accompanying prospectus, including in our Annual Report on Form 10-K for the year ended December 31, 2025, our Quarterly Report on Form 10-Q for the quarter ended March 31, 2026 and any risk factors that we may describe in our Quarterly Reports on Form 10-Q or Current Reports on Form 8-K filed subsequently to this prospectus supplement. If any of the risks actually occur, our business, financial condition or results of operations could suffer. In that event, you may lose all or part of your investment in the common stock.

Risks Related to this Offering

It is not possible to predict the actual number of shares we will sell under the Sales Agreement, or the actual gross proceeds resulting from those sales.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver a placement notice to the Lead Agent at any time throughout the term of the Sales Agreement. The number of shares that are sold through the Lead Agent after delivering a placement notice will fluctuate based on a number of factors, including the market price of the common stock during the sales period, the limits we set with the Lead Agent in any applicable placement notice, and the demand for our common stock during the sales period. Actual gross proceeds may be less than \$150 million, which may impact our future liquidity. Because the price per share of each share sold will fluctuate during the sales period, it is not currently possible to predict the number of shares that will be sold or the actual gross proceeds to be raised in connection with those sales.

The common stock offered hereby will be sold in “at the market offerings,” and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different levels of dilution and different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices, and numbers of shares sold in this offering. In addition, there is no minimum sales price above par value or maximum sales price for shares to be sold in this offering. Investors may experience a decline in the value of the shares they purchase in this offering as a result of sales made at prices lower than the prices they paid.

Future sales of substantial amounts of our common stock, or the possibility that such sales could occur, could adversely affect the market price of our common stock.

In order to raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering.

Additionally, certain of our stockholders holding an aggregate of 107,731,359 shares of our common stock (representing 85.3% of our outstanding common stock as of April 8, 2026) are party to a registration rights agreement, pursuant to which we are required to effect the registration of their shares of common stock and provide demand and piggyback rights with respect to offerings in certain circumstances. The registration rights agreement facilitates the resale of this significant amount of our common stock should such stockholders choose to exercise these rights. We cannot predict the size of future sales of shares of our common stock and the impact any such sales will have on the market price of our common stock. Sales of substantial amounts of our common stock by such stockholders, or the perception that such sales could occur, may adversely affect prevailing market prices of our common stock.

Management will have broad discretion as to the use of the proceeds from this offering, and uses may not improve our financial condition or market value.

Because we have not designated the amount of net proceeds from this offering to be used for any particular purpose, our management will have broad discretion as to the application of the net proceeds from this offering and could use them for purposes other than those contemplated at the time of the offering. Our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value.

USE OF PROCEEDS

The amount of proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. There can be no assurance that we will be able to sell any shares under or fully utilize the Sales Agreement with the Agents.

We currently plan to use the net proceeds from this offering, after deducting the Agents' commissions and offering expenses payable by us, for general corporate purposes, which may include, among other things, paying or refinancing all or a portion of our then-outstanding indebtedness.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with the Agents under which we may issue and sell common stock from time to time in an amount up to \$150,000,000 through or to the Lead Agent, acting as agent or principal. Sales of our common stock, if any, under this prospectus supplement and the accompanying prospectus will be made at market prices by any method deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act.

Each time that we wish to issue and sell our common stock under the Sales Agreement, we will provide the Lead Agent with a placement notice describing the amount of common stock to be sold, the time period during which sales are requested to be made, any limitation on the amount of common stock that may be sold in any single day, any minimum price below which sales may not be made or any minimum price requested for sales in a given time period and any other instructions relevant to such requested sales.

Upon receipt of a placement notice, the Lead Agent, acting as our sales agent, will use commercially reasonable efforts, consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the Nasdaq, to sell our common stock under the terms and subject to the conditions of the placement notice and the Sales Agreement. We or the Lead Agent may suspend the offering of common stock pursuant to a placement notice upon notice and subject to other conditions.

Settlement for sales of common stock will occur, unless the parties agree otherwise, on the first business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There are no arrangements to place any of the proceeds of this offering in an escrow, trust or similar account. Sales of our common stock as contemplated in this prospectus supplement will be settled through the facilities of The Depository Trust Company or by such other means as we and the Lead Agent may agree upon.

We will pay the Lead Agent commissions for its services in acting as our sales agent in the sale of our common stock pursuant to the Sales Agreement. The Lead Agent will be entitled to compensation at a fixed commission rate of up to 3.00% of the gross proceeds from the sale of our common stock on our behalf pursuant to the Sales Agreement. We have agreed to reimburse the Agents for their reasonable and documented out-of-pocket expenses (including but not limited to the reasonable and documented fees and expenses of its legal counsel) in an amount not to exceed \$60,000 in connection with entering into the Sales Agreement and for their reasonable and documented out-of-pocket expenses related to quarterly maintenance of the Sales Agreement (including but not limited to the reasonable and documented fees and expenses of its legal counsel) on a quarterly basis in an amount not to exceed \$10,000.

We estimate that the total expenses for commencement of this offering, excluding compensation payable to the Lead Agent and certain expenses reimbursable to the Agents under the terms of the Sales Agreement, will be approximately \$230,000. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory, or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

Because there are no minimum sale requirements as a condition to this offering, the actual total public offering price, commissions and net proceeds to us, if any, are not determinable at this time. The actual dollar amount and shares of our common stock we sell through this prospectus supplement will be dependent, among other things, on market conditions and our capital raising requirements.

In connection with the sale of our common stock on our behalf, the Agents will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation will be deemed to be underwriting commissions or discounts. We have agreed to provide indemnification and contribution to the Agents against certain civil liabilities, including liabilities under the Securities Act.

The Agents and their affiliates may provide various investment banking, commercial banking and other financial services to us and our affiliates, for which services they may in the future receive customary fees. In the course of its business, the Agents may actively trade our securities for their own accounts or for the accounts of customers, and, accordingly, the Agents may at any time hold long or short positions in such securities. The Agents will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement if such activity would be prohibited under Regulation M or other anti-manipulation rules under the Securities Act. The Agents also will not engage in any transactions that stabilize our common stock.

The offering pursuant to the Sales Agreement will terminate upon the earlier of (i) the sale of all of our common stock subject to the Sales Agreement and (ii) termination of the Sales Agreement as permitted therein. We may terminate the Sales Agreement in our sole discretion at any time by giving five days’ prior notice to the Agents. The Agents may terminate the Sales Agreement as to themselves under the circumstances specified in the Sales Agreement and in their sole discretion at any time by giving five days’ prior notice to us.

This prospectus supplement and the accompanying prospectus in electronic format may be made available on a website maintained by the Agents, and the Agents may distribute this prospectus supplement and the accompanying prospectus electronically.

MATERIAL U.S. FEDERAL INCOME TAX CONSIDERATIONS FOR NON-U.S. HOLDERS

The following is a summary of the material U.S. federal income tax considerations related to the purchase, ownership and disposition of our common stock by a non-U.S. holder (as defined below) that acquired our common stock pursuant to this offering and holds our common stock as a “capital asset” within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the “Code”) (generally, property held for investment). This summary is based on the provisions of the Code, U.S. Treasury regulations promulgated thereunder, administrative rulings and judicial decisions, all as in effect on the date hereof, and all of which are subject to change or differing interpretations, possibly with retroactive effect. We cannot assure you that a change in law will not significantly alter the tax considerations that we describe in this summary. We have not sought any ruling from the Internal Revenue Service (“IRS”) with respect to the statements made and the positions and conclusions described in the following summary, and there can be no assurance that the IRS or a court will agree with such statements, positions and conclusions.

This summary does not address all aspects of U.S. federal income taxation that may be relevant to non-U.S. holders in light of their personal circumstances. In addition, this summary does not address the impact of the Medicare surtax on certain net investment income, U.S. federal estate or gift tax laws, any U.S. state or local or non-U.S. tax laws or any tax treaties. This summary also does not address all U.S. federal income tax considerations that may be relevant to particular non-U.S. holders in light of their personal circumstances or that may be relevant to certain categories of investors that may be subject to special rules, such as:

- banks, insurance companies or other financial institutions;
- tax-exempt or governmental organizations;
- tax-qualified retirement plans;
- “qualified foreign pension funds” as defined in Section 897(l)(2) of the Code (or any entities all of the interests of which are held by a qualified foreign pension fund);
- dealers in securities or foreign currencies;
- persons whose functional currency is not the U.S. dollar;
- traders in securities that use the mark-to-market method of accounting for U.S. federal income tax purposes;
- “controlled foreign corporations”, “passive foreign investment companies” and corporations that accumulate earnings to avoid U.S. federal income tax;
- entities or arrangements treated as partnerships or pass-through entities for U.S. federal income tax purposes or holders of interests therein;
- persons deemed to sell our common stock under the constructive sale provisions of the Code;
- persons that acquired our common stock through the exercise of employee stock options or otherwise as compensation or through a tax-qualified retirement plan;
- persons that hold our common stock as part of a straddle, appreciated financial position, synthetic security, hedge, conversion transaction or other integrated investment or risk reduction transaction; and
- certain former citizens or long-term residents of the United States.

PROSPECTIVE INVESTORS SHOULD CONSULT WITH THEIR OWN TAX ADVISORS WITH RESPECT TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS (INCLUDING ANY POTENTIAL FUTURE CHANGES THERETO) TO THEIR PARTICULAR SITUATION, AS WELL AS ANY TAX CONSEQUENCES OF THE PURCHASE, OWNERSHIP AND DISPOSITION OF OUR COMMON STOCK ARISING UNDER ANY OTHER TAX LAWS, INCLUDING U.S. FEDERAL ESTATE OR GIFT TAX LAWS OR UNDER THE LAWS OF ANY U.S. STATE OR LOCAL OR NON-U.S. TAXING JURISDICTION, OR UNDER ANY APPLICABLE INCOME TAX TREATY.

Non-U.S. Holder Defined

For purposes of this discussion, a “non-U.S. holder” is a beneficial owner of our common stock that is not for U.S. federal income tax purposes a partnership or any of the following:

- an individual who is a citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to U.S. federal income tax regardless of its source; or
- a trust (i) the administration of which is subject to the primary supervision of a U.S. court and which has one or more “United States persons” (within the meaning of Section 7701(a)(30) of the Code) who have the authority to control all substantial decisions of the trust or (ii) which has made a valid election under applicable U.S. Treasury regulations to be treated as a United States person.

If a partnership (including an entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds our common stock, the tax treatment of a partner in the partnership generally will depend upon the status of the partner, the activities of the partnership and certain determinations made at the partner level. Accordingly, we urge partners in partnerships (including entities or arrangements treated as partnerships for U.S. federal income tax purposes) considering the purchase of our common stock to consult with their own tax advisors regarding the U.S. federal income tax considerations of the purchase, ownership and disposition of our common stock by such partnership.

Distributions

Distributions of cash or other property on our common stock, if any, will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as determined under U.S. federal income tax principles. To the extent those distributions exceed our current and accumulated earnings and profits, the distributions will be treated as a non-taxable return of capital to the extent of the non-U.S. holder’s tax basis in our common stock and thereafter as capital gain from the sale or exchange of such common stock. See “—Gain on Sale or Other Taxable Disposition of Common Stock.” Subject to the withholding requirements under FATCA (as defined below) and with respect to effectively connected dividends, each of which is discussed below, any distribution made to a non-U.S. holder on our common stock generally will be subject to U.S. withholding tax at a rate of 30% of the gross amount of the distribution unless an applicable income tax treaty provides for a lower rate. To receive the benefit of a reduced treaty rate, a non-U.S. holder must provide the applicable withholding agent with an IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable or successor form) certifying qualification for the reduced rate.

Dividends paid to a non-U.S. holder that are effectively connected with a trade or business conducted by the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, are treated as attributable to a permanent establishment maintained by the non-U.S. holder in the United States) generally will be taxed on a net income basis at the rates and in the manner generally applicable to United States persons. Such effectively connected dividends will not be subject to U.S. withholding tax if the non-U.S. holder satisfies certain certification requirements by providing the applicable withholding agent with a properly executed IRS Form W-8ECI certifying eligibility for exemption. If the non-U.S. holder is a corporation for U.S. federal income tax purposes, it may also be subject to a branch profits tax (at a 30% rate or such lower rate as specified by an applicable income tax treaty) on its effectively connected earnings and profits (as adjusted for certain items), which will include effectively connected dividends.

Gain on Sale or Other Taxable Disposition of Common Stock

Subject to the discussion below under “—Backup Withholding and Information Reporting,” a non-U.S. holder generally will not be subject to U.S. federal income or withholding tax on any gain realized upon the sale or other taxable disposition of our common stock unless:

- the non-U.S. holder is an individual who is present in the United States for a period or periods aggregating 183 days or more during the calendar year in which the sale or disposition occurs and certain other conditions are met;
- the gain is effectively connected with a trade or business conducted by the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States); or
- our common stock constitutes a United States real property interest by reason of our status as a United States real property holding corporation (“USRPHC”) for U.S. federal income tax purposes and as a result such gain is treated as effectively connected with a trade or business conducted by the non-U.S. holder in the United States.

A non-U.S. holder described in the first bullet point above will be subject to U.S. federal income tax at a rate of 30% (or such lower rate as specified by an applicable income tax treaty) on the amount of such gain, which generally may be offset by certain U.S. source capital losses provided the non-U.S. holder has timely filed U.S. federal income tax returns with respect to such losses.

A non-U.S. holder whose gain is described in the second bullet point above or, subject to the exceptions described in the next paragraph, the third bullet point above, generally will be taxed on a net income basis at the rates and in the manner generally applicable to United States persons. If the non-U.S. holder is a corporation for U.S. federal income tax purposes whose gain is described in the second bullet point above, then such gain would also be included in its effectively connected earnings and profits (as adjusted for certain items), which may be subject to a branch profits tax (at a 30% rate or such lower rate as specified by an applicable income tax treaty).

Generally, a corporation is a USRPHC if the fair market value of its United States real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests and its other assets used or held for use in a trade or business. We believe that we currently are, and expect to remain for the foreseeable future, a USRPHC for U.S. federal income tax purposes. However, as long as our common stock continues to be “regularly traded on an established securities market” (within the meaning of the U.S. Treasury regulations), only a non-U.S. holder that actually or constructively owns, or owned at any time during the shorter of the five-year period ending on the date of the disposition or the non-U.S. holder’s holding period for the common stock, more than 5% of our common stock will be treated as disposing of a United States real property interest and will be taxable on gain realized on the disposition of our common stock as a result of our status as a USRPHC. If our common stock were not considered to be regularly traded on an established securities market, each non-U.S. holder (regardless of the percentage of stock owned) would be treated as disposing of a United States real property interest and would be subject to U.S. federal income tax on a taxable disposition of our common stock (as described in the preceding paragraph), and a 15% withholding tax would apply to the gross proceeds from such disposition.

Non-U.S. holders should consult with their own tax advisors with respect to the application of the foregoing rules to their ownership and disposition of our common stock, including regarding potentially applicable income tax treaties that may provide for different rules.

Backup Withholding and Information Reporting

Any distributions paid to a non-U.S. holder must be reported annually to the IRS and to the non-U.S. holder. Copies of these information returns may be made available to the tax authorities in the country in which the non-U.S. holder resides or is established. Payments of dividends to a non-U.S. holder generally will not be subject to backup withholding if the non-U.S. holder establishes an exemption by properly certifying its non-U.S. status on an IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable or successor form).

Payments of the proceeds from a sale or other disposition by a non-U.S. holder of our common stock effected by or through a U.S. office of a broker generally will be subject to information reporting and backup withholding (at the applicable rate) unless the non-U.S. holder establishes an exemption by properly certifying its non-U.S. status on an IRS Form W-8BEN or IRS Form W-8BEN-E (or other applicable or successor form) and certain other conditions are met. Information reporting and backup withholding generally will not apply to any payment of the proceeds from a sale or other disposition of our common stock effected outside the United States by a non-U.S. office of a broker. However, unless such broker has documentary evidence in its records that the non-U.S. holder is not a United States person and certain other conditions are met, or the non-U.S. holder otherwise establishes an exemption, information reporting will apply to a payment of the proceeds of the disposition of our common stock effected outside the United States by such a broker if it has certain relationships within the United States.

Backup withholding is not an additional tax. Rather, the U.S. federal income tax liability (if any) of persons subject to backup withholding will be reduced by the amount of tax withheld. If backup withholding results in an overpayment of taxes, a refund may be obtained, provided that the required information is timely furnished to the IRS.

Additional Withholding Requirements under FATCA

Sections 1471 through 1474 of the Code, and the U.S. Treasury regulations and administrative guidance issued thereunder (“FATCA”), impose a 30% withholding tax on “withholdable payments” (as defined in the Code), including dividends on our common stock, if paid to a “foreign financial institution” or a “non-financial foreign entity” (each as defined in the Code) (including, in some cases, when such foreign financial institution or non-financial foreign entity is acting as an intermediary), unless (i) in the case of a foreign financial institution, such institution enters into an agreement with the U.S. government to withhold on certain payments and to collect and provide to the U.S. tax authorities substantial information regarding U.S. account holders of such institution (which includes certain equity and debt holders of such institution, as well as certain account holders that are non-U.S. entities with U.S. owners), (ii) in the case of a non-financial foreign entity, such entity certifies that it does not have any “substantial United States owners” (as defined in the Code) or provides the applicable withholding agent with a certification identifying the direct and indirect substantial United States owners of the entity (in either case, generally on an IRS Form W-8BEN-E), or (iii) the foreign financial institution or non-financial foreign entity otherwise qualifies for an exemption from these rules and provides appropriate documentation (such as an IRS Form W-8BEN-E). Foreign financial institutions located in jurisdictions that have an intergovernmental agreement with the United States governing these rules may be subject to different rules. Under certain circumstances, a holder might be eligible for refunds or credits of such taxes. While gross proceeds from a sale or other disposition of our common stock, would have originally been subject to withholding under FATCA, proposed U.S. Treasury regulations provide that such payments of gross proceeds do not constitute withholdable payments. Taxpayers may generally rely on these proposed U.S. Treasury regulations until they are revoked or final U.S. Treasury regulations are issued. Non-U.S. holders are encouraged to consult with their own tax advisors regarding the effects of FATCA on an investment in our common stock.

INVESTORS CONSIDERING THE PURCHASE OF OUR COMMON STOCK SHOULD CONSULT WITH THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS (INCLUDING ANY POTENTIAL FUTURE CHANGES THERETO) TO THEIR PARTICULAR SITUATIONS AND THE APPLICABILITY AND EFFECT OF ANY OTHER TAX LAWS, INCLUDING U.S. FEDERAL ESTATE AND GIFT TAX LAWS AND ANY U.S. STATE OR LOCAL OR NON-U.S. TAX LAWS, AND TAX TREATIES.

LEGAL MATTERS

Vinson & Elkins L.L.P., Houston, Texas, will issue opinions about the validity of the common stock and various legal matters in connection with the offering on our behalf. Certain legal matters in connection with the common stock offered hereby will be passed upon for the Agents by Porter Hedges LLP.

EXPERTS

The financial statements of the Company, incorporated by reference in this prospectus supplement to the Company's Annual Report on Form 10-K for the year ended December 31, 2025, and the effectiveness of the Company's internal control over financial reporting have been audited by Weaver and Tidwell, L.L.P., an independent registered public accounting firm, as stated in their reports. Such financial statements have been so incorporated by reference in reliance upon the reports of such firm given upon their authority as experts in accounting and auditing.

Certain estimates of the oil and gas reserves for HighPeak Energy, Inc. and subsidiaries and related future net cash flows and the present values thereof incorporated by reference into this prospectus supplement from the Company's [Annual Report on Form 10-K for the year ended December 31, 2025](#) were based in part upon engineering reports prepared by Cawley, Gillespie and Associates, Inc., an independent petroleum engineering firm. These estimates are included and incorporated herein in reliance on the authority of such firms as experts in such matters.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement with the SEC under the Securities Act, that registers the offer and sale of the securities covered by this prospectus supplement. The registration statement, including the exhibits attached thereto and incorporated by reference therein, contains additional relevant information about us. In addition, we file annual, quarterly and other reports and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. Our SEC filings are available on the SEC's website at www.sec.gov.

We make available free of charge on or through our website, <http://ir.highpeakenergy.com>, our filings with the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We make our website content available for information purposes only. Information contained on our website is not incorporated by reference into this prospectus supplement and does not constitute a part of this prospectus supplement.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to "incorporate by reference" the information we have filed with the SEC. This means that we can disclose important information to you without actually including the specific information in this prospectus supplement by referring you to other documents filed separately with the SEC. The information incorporated by reference is an important part of this prospectus supplement. 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 supplement and information previously filed with the SEC.

We incorporate by reference the documents listed below that we have previously filed with the SEC and any future filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of Exchange Act (excluding information deemed to be furnished and not filed with the SEC):

- our [Annual Report on Form 10-K for the year ended December 31, 2025](#), filed with the SEC on March 11, 2026;
- portions of the [Definitive Proxy Statement on Schedule 14A, filed with the SEC on April 30, 2026](#), that are incorporated by reference into Part III of our [Annual Report on Form 10-K for the fiscal year ended December 31, 2025](#), filed with the SEC on March 11, 2026;

- our [Quarterly Report on Form 10-Q for the quarter ended March 31, 2026](#), filed with the SEC on May 6, 2026;
- our Current Reports on Form 8-K filed with the SEC on [May 1, 2026](#) and [May 6, 2026](#);
- the description of our common stock contained in our [registration statement on Form 8-A12B](#) filed with the SEC on August 19, 2020, as amended by Amendment No. 1 on [Form 8-A12B/A](#) filed with the SEC on August 20, 2020, including any amendments or reports that we may file in the future for the purpose of updating such descriptions.

These reports contain important information about us, our financial condition and our results of operations.

You may obtain copies of any of the documents incorporated by reference in this prospectus supplement from the SEC through the SEC's website at the address provided above. You also may request a copy of the registration statement and any document incorporated by reference in this prospectus supplement (including exhibits to those documents specifically incorporated by reference in this prospectus supplement), at no cost, by contacting us at:

HighPeak Energy, Inc.
Attention: Investor Relations
421 W. 3rd St., Suite 1000
Fort Worth, Texas 76102
(817) 850-9200



HighPeak Energy, Inc.

\$300,000,000

Common Stock

From time to time we may offer and sell shares of our common stock, par value \$0.0001 per share (“common stock”). The aggregate initial offering price of all shares of common stock sold by us under this prospectus will not exceed \$300,000,000.

We may offer and sell these securities from time to time in amounts, at prices and on terms to be determined by market conditions and other factors at the time of our offerings. This prospectus provides you with a general description of these securities and the general manner in which we will offer the securities. Each time securities are offered, we will provide a prospectus supplement that will contain specific information about the terms of that offering. Any prospectus supplement may also add, update or change information contained in this prospectus.

Our common stock is traded on the Nasdaq Global Market (the “Nasdaq”) under the symbol “HPK.” On October 30, 2025 closing price of our common stock was \$6.36.

We are an “emerging growth company” as that term is used in the Jumpstart Our Business Startups Act of 2012, and, as such, have elected to avail ourselves of certain reduced public company reporting requirements for this prospectus and future filings.

You should read carefully this prospectus, the documents incorporated by reference in this prospectus and any prospectus supplement before you invest. See “Risk Factors” beginning on page 5 of this prospectus for information on certain risks related to the purchase of our securities.

We may sell the securities directly or to or through underwriters or dealers, and also to other purchasers or through agents. The names of any underwriters or agents that are included in a sale of securities to you, and any applicable commissions or discounts, will be stated in any accompanying prospectus supplement. In addition, the underwriters, if any, may over-allot a portion of the securities.

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

The date of this prospectus is _____, 2025.

TABLE OF CONTENTS

	<u>Page</u>
ABOUT THIS PROSPECTUS	ii
WHERE YOU CAN FIND MORE INFORMATION	iii
DOCUMENTS INCORPORATED BY REFERENCE	1
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT HIGHPEAK ENERGY, INC.	4
RISK FACTORS	5
USE OF PROCEEDS	6
DESCRIPTION OF SECURITIES	7
PLAN OF DISTRIBUTION	10
LEGAL MATTERS	12
EXPERTS	12

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the SEC using a “shelf” registration process. Under this shelf registration process, we may offer and sell from time to time the securities described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities that are registered hereunder that may be offered by us. Each time we offer the securities, we will provide you with a prospectus supplement that will describe, among other things, the specific amounts and prices of the securities being offered and the terms of the offering.

Any prospectus supplement may add, update, or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in any prospectus supplement. The information in this prospectus is accurate as of its date. Additional information, including our financial statements and the notes thereto, is incorporated in this prospectus by reference to our reports filed with the SEC. Therefore, before you invest in our securities, you should carefully read this prospectus and any prospectus supplement relating to the securities offered to you together with the additional information incorporated by reference in this prospectus and any prospectus supplement (including the documents described under the heading “Where You Can Find More Information” and “Documents Incorporated by Reference” in both this prospectus and any prospectus supplement).

You should rely only on the information contained in or incorporated by reference in this prospectus or any prospectus supplement. We have not authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. Neither we nor anyone acting on our behalf is making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information incorporated by reference or provided in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front of those documents.

Unless the context otherwise requires, throughout this prospectus and any applicable prospectus supplement, the words “we,” “us,” the “registrant,” “the Company,” or “HighPeak Energy” refer to HighPeak Energy, Inc.; and the term “securities” refers to the shares of our common stock registered hereunder.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement with the SEC under the Securities Act of 1933, as amended (the “Securities Act”), that registers the offer and sale of the securities covered by this prospectus. The registration statement, including the exhibits attached thereto and incorporated by reference therein, contains additional relevant information about us. In addition, we file annual, quarterly and other reports and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. Our SEC filings are available on the SEC’s website at www.sec.gov.

We make available free of charge on or through our website, www.highpeakenergy.com, our filings with the SEC pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We make our website content available for information purposes only. Information contained on our website is not incorporated by reference into this prospectus and does not constitute a part of this prospectus.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” the information we have filed with the SEC. This means that we can disclose important information to you without actually including the specific information in this prospectus by referring you to other documents filed separately with the SEC. The information incorporated by reference is an important part of this prospectus. 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 documents listed below and any filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act (excluding information deemed to be furnished and not filed with the SEC), after the date on which the registration statement was initially filed with the SEC (including all such documents that we may file with the SEC after the date the registration statement was initially filed and prior to the effectiveness of the registration statement) until all offerings under the registration statement of which this prospectus forms a part are completed or terminated:

- our [Annual Report on Form 10-K](#) for the year ended December 31, 2024 filed on March 10, 2025, including those portions of our definitive proxy statement on [Schedule 14A](#), filed on April 16, 2025, incorporated by reference therein;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2025](#) and [June 30, 2025](#), filed on May 12, 2025 and August 11, 2025, respectively;
- our Current Reports on Form 8-K filed on [June 3, 2025](#), [June 30, 2025](#), [August 4, 2025](#), [September 15, 2025](#) and [September 16, 2025](#); and
- the description of our common stock contained in our [Registration Statement on Form 8-A12B](#) filed on August 19, 2020, as amended by the Amendment No. 1 on [Form 8-A12B/A](#) filed on August 20, 2020, including any amendments or reports that we may file in the future for the purpose of updating such description.

These reports contain important information about us, our financial condition and our results of operations.

You may obtain copies of any of the documents incorporated by reference in this prospectus from the SEC through the SEC’s website at the address provided above. You also may request a copy of any document incorporated by reference in this prospectus (including exhibits to those documents specifically incorporated by reference in this prospectus), at no cost, by contacting us at:

HighPeak Energy, Inc.
Attention: Investor Relations
421 W. 3rd Street, Suite 1000
Fort Worth, Texas 76012
(817) 850-9200

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The information in this prospectus includes “forward-looking statements” within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act. All statements other than statements of historical facts included or incorporated by reference in this prospectus, including, without limitation, statements regarding HighPeak Energy’s future financial position, business strategy, budgets, projected revenues, projected costs, and plans and objectives of management for future operations are forward-looking statements. Such forward-looking statements are based on the beliefs of management, as well as assumptions made by, and information currently available to, the Company’s management. In addition, forward-looking statements generally can be identified by the use of forward-looking terminology such as “believes,” “plans,” “expects,” “anticipates,” “forecasts,” “intends,” “continue,” “may,” “will,” “could,” “should,” “future,” “potential,” “estimate” or the negative of such terms and similar expressions as they relate to the Company are intended to identify forward-looking statements which are generally not historical in nature. The forward-looking statements are based on management’s current expectations, assumptions, estimates and projections about the Company and the industry in which the Company operates. Although the Company believes that the expectations and assumptions reflected in the forward-looking statements are reasonable as and when made, they involve risks and uncertainties that are difficult to predict and, in many cases, beyond the Company’s control. In addition, the Company may be subject to currently unforeseen risks that may have a materially adverse effect on it. Accordingly, no assurances can be given that the actual events and results will not be materially different from the anticipated results described in the forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date hereof. The Company undertakes no duty to publicly update these statements except as required by law. Important factors that could cause actual results to differ materially from the Company’s expectations include, but are not limited to, the Company’s assumptions regarding the following factors.

In addition, HighPeak Energy cautions you that forward-looking statements regarding HighPeak Energy, which are contained in this prospectus, are also subject to the following factors:

- the supply and demand for and market prices of crude oil, NGL, natural gas and other products or services, and the associated impact of our hedging policies relating thereto;
- inflation rates, the impacts of associated monetary policy responses, including increased or decreased interest rates and resulting pressures on economic growth, U.S. trade policy and the imposition of and changes to tariffs;
- political instability or armed conflict in crude oil or natural gas producing regions, such as the ongoing wars between Russia and Ukraine and the Israel-Hamas conflict;
- volatility in the political, legal and regulatory environments;
- political and regulatory uncertainties;
- our liquidity, cash flow and access to capital;
- the availability of capital resources;
- our ability to refinance or pay, when due, the principal of, interest or other amounts due in respect of our indebtedness;
- production and reserve levels;
- drilling and completion risks;
- economic and competitive conditions;
- the impacts of revising our drilling plan during the year transitioning to an increased or decreased rig count from time to time;

- severe weather conditions;
- epidemics or pandemics, including the effects of public health concerns and the impact of continued actions taken by governmental authorities and other third parties in response to a pandemic and their impact on commodity prices, supply and demand considerations, and storage capacity;
- the availability of goods and services and supply chain issues;
- legislative, regulatory, or policy changes;
- regulatory and related policy actions intended by federal, state and/or local governments to reduce fossil fuel use and associated carbon emissions, to drive the substitution of renewable forms of energy for crude oil and natural gas, which may over time reduce demand for crude oil, NGL and natural gas, including as a result of the Inflation Reduction Act of 2022 (“IRA 2022”) or otherwise;
- our ability to predict and manage the effects of actions of OPEC or OPEC+ and agreements to set and maintain production levels;
- cyber-attacks;
- occurrence of property acquisitions or divestitures;
- the integration of acquisitions;
- capital markets and our ability to access such markets on attractive terms or at all, and related risks such as general credit, liquidity, market and interest-rate risks; and
- the results of our ongoing strategic alternatives process.

Should one or more of the risks or uncertainties described in this prospectus occur, or should underlying assumptions prove incorrect, actual results and plans could differ materially from those expressed in any forward-looking statements. Additional information concerning these and other factors that may impact the operations and projections discussed herein can be found in the section entitled “Risk Factors” herein and in HighPeak Energy’s periodic filings with the SEC. HighPeak Energy’s SEC Filings are available publicly on the SEC’s website at www.sec.gov.

ABOUT HIGHPEAK ENERGY, INC.

HighPeak Energy, Inc., a Delaware corporation, formed in October 2019, is an independent crude oil and natural gas exploration and production company that explores for, develops and produces crude oil, NGL and natural gas in the Permian Basin in West Texas, more specifically, the Midland Basin. The Company's assets are located primarily in Howard and Borden Counties, Texas, and to a lesser extent Scurry and Mitchell Counties, which lie within the northeastern part of the crude oil-rich Midland Basin. As of June 30, 2025, the assets consisted of two highly contiguous leasehold positions of approximately 154,858 gross (143,826 net) acres, approximately 68% of which were held by production, with an average working interest of 93%. Our acreage is composed of two core areas, Flat Top primarily in the northern portion of Howard County extending into southern Borden County, southwest Scurry County and northwest Mitchell County and Signal Peak in the southern portion of Howard County. We operate approximately 98% of the net acreage across the Company's assets and more than 90% of the net operated acreage provides for horizontal wells with lateral lengths of 10,000 feet or greater. For the six months ended June 30, 2025, approximately 86% and 14% of sales volumes from the assets were attributable to liquids (both crude oil and NGL) and natural gas, respectively. As of June 30, 2025, HighPeak Energy was developing its properties using one (1) drilling rig and one (1) frac crew and expects to average one to two (1-2) drilling rigs and approximately one (1) frac crew during the remainder of 2025 under our current development plan.

Our principal executive offices are located at 421 W 3rd Street, Suite 1000, Fort Worth, Texas 76102, and our telephone number is (817) 850-9200. Our website address is www.highpeakenergy.com. The information on our website is not part of this prospectus.

Implications of Being an Emerging Growth Company

We are an "emerging growth company" as defined in the JOBS Act enacted in April 2012. As a result, we may take advantage of reduced reporting requirements that are otherwise applicable to public companies, including delaying auditor attestation of internal control over financial reporting, providing only two years of audited financial statements and related Management's Discussion and Analysis of Financial Condition and Results of Operations, and reducing executive compensation disclosures.

We will remain an emerging growth company until the earlier to occur of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of our business combination, which was August 21, 2025, (b) in which we have total annual gross revenue of at least \$1.235 billion, or (c) in which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior July 31st and (2) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. Additionally, we are subject to an extended transition period for complying with new or revised accounting standards. As a result, the information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests.

RISK FACTORS

An investment in our securities involves a significant degree of risk. Before you invest in our securities, you should carefully consider those risk factors included in our most recent Annual Report on Form 10-K, any subsequently filed Quarterly Reports on Form 10-Q and any subsequently filed Current Reports on Form 8-K, each of which is incorporated herein by reference, and those risk factors that may be included in any applicable prospectus supplement, together with all of the other information included in this prospectus, any prospectus supplement and the documents we incorporate by reference, in evaluating an investment in our securities. If any of these risks were actually to occur, our business, financial condition or results of operations could be materially adversely affected. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations and financial condition. Please read “Cautionary Note Regarding Forward-Looking Statements.”

USE OF PROCEEDS

Unless otherwise specified in an accompanying prospectus supplement, we will use the net proceeds we receive from the sale of the securities covered by this prospectus for general corporate purposes, which may include, among other things, paying or refinancing all or a portion of our indebtedness at the time, and funding acquisitions, capital expenditures and working capital.

The actual application of the net proceeds from the sale of any particular offering of securities using this prospectus will be described in the applicable prospectus supplement relating to such offering.

DESCRIPTION OF SECURITIES

The following description of our common stock is not complete and may not contain all the information you should consider before investing in our common stock. This description is a summary of certain provisions contained in, and is qualified in its entirety by reference to, our second amended and restated certificate of incorporation (the “A&R Charter”), and our amended and restated bylaws (the “Bylaws”).

Authorized and Outstanding Common Stock

The A&R Charter authorizes the issuance of 600,000,000 shares of our common stock and 10,000,000 shares of preferred stock, par value \$0.0001 per share. The outstanding shares of our common stock are duly authorized, validly issued, fully paid and non-assessable. Common stockholders of record are entitled to one vote for each share held on all matters to be voted on by stockholders. As of the date of this prospectus there were 125,587,093 shares of our common stock issued and outstanding.

Please see our Registration Statement on Form 8-A12B (File No. 001-39464) filed August 19, 2020, as amended by Amendment No. 1 on Form 8-A12B/A filed on August 20, 2020, including any amendments or reports that we may file in the future for the purpose of updating such description, which is incorporated by reference herein, for a description of our common stock.

Transfer Agent and Registrar

The Transfer Agent for HighPeak Energy’s common stock is Continental Stock Transfer & Trust Company (“Continental”). HighPeak Energy has agreed to indemnify Continental in its roles as Transfer Agent, its agents and each of its stockholders, directors, officers and employees against all liabilities, including judgments, costs and reasonable counsel fees that may arise out of acts performed or omitted for its activities in that capacity, except for any liability due to any gross negligence, willful misconduct or bad faith of the indemnified person or entity.

Certain Anti-Takeover Provisions of Delaware Law and HighPeak Energy’s A&R Charter and Bylaws

HighPeak Energy is subject to the provisions of Section 203 of the Delaware General Corporation Law (“DGCL”) regulating corporate takeovers. This statute prevents certain Delaware corporations, under certain circumstances, from engaging in a “business combination” with:

- a stockholder who owns 15% or more of HighPeak Energy’s outstanding voting stock (otherwise known as an “interested stockholder”);
- an affiliate of an interested stockholder; or
- an associate of an interested stockholder, for three years following the date that the stockholder became an interested stockholder.

A “business combination” includes a merger or sale of more than 10% of HighPeak Energy’s assets. However, the above provisions of Section 203 do not apply if:

- the board of directors of HighPeak Energy (the “Board”) approves the transaction that made the stockholder an “interested stockholder,” prior to the date of the transaction;
- after the completion of the transaction that resulted in the stockholder becoming an interested stockholder, that stockholder owned at least 85% of HighPeak Energy’s voting stock outstanding at the time the transaction commenced, other than statutorily excluded shares of voting common stock; or
- on or subsequent to the date of the transaction, the business combination is approved by the Board and authorized at a meeting of HighPeak Energy’s stockholders, and not by written consent, by an affirmative vote of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

HighPeak Energy’s authorized but unissued voting common stock and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved voting common stock and preferred stock could render more difficult or discourage an attempt to obtain control of HighPeak Energy by means of a proxy contest, tender offer, merger or otherwise.

Written Consent by Stockholders

HighPeak Energy's A&R Charter provides that prior to the first date in which HighPeak Pure Acquisition, LLC ("Sponsor"), HighPeak Energy Partners, LP, HighPeak Energy Partners II, LP and each of their respective affiliates and certain permitted transferees (collectively, the "HighPeak Group") no longer collectively beneficially owns more than 50% of the outstanding HighPeak Energy voting securities, HighPeak Energy stockholders may take action by written consent of the holders of not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Before such time, any action required or permitted to be taken by HighPeak Energy's stockholders that is approved in advance by the Board may be effected without a meeting, without prior notice and without a vote of stockholders, if a consent or consents in writing, setting forth the action so taken, is or are signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. If any such action by written consent is taken then HighPeak Energy will notify its stockholders of the same.

Special Meeting of Stockholders

The Bylaws provide that special meetings of its stockholders may be called only by a majority vote of the entire Board, by HighPeak Energy's President or by HighPeak Energy's Chairman.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

The Bylaws provide that stockholders seeking to bring business before HighPeak Energy's annual meeting of stockholders, or to nominate candidates for election as directors at HighPeak Energy's annual meeting of stockholders, must provide timely notice of their intent in writing. To be timely, a stockholder's notice will need to be received by the Company's secretary at HighPeak Energy's principal executive offices not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the anniversary date of the immediately preceding annual meeting of stockholders. Pursuant to Rule 14a-8 of the Exchange Act, proposals seeking inclusion in HighPeak Energy's Annual Proxy Statement must comply with the notice periods contained therein. The Bylaws also specify certain requirements as to the form and content of a stockholders' meeting. These provisions may preclude HighPeak Energy's stockholders from bringing matters before HighPeak Energy's annual meeting of stockholders or from making nominations for directors at HighPeak Energy's annual meeting of stockholders.

Exclusive Forum

The A&R Charter provides that a stockholder bringing a claim subject to Article 8 of the A&R Charter will be required to bring that claim in the Court of Chancery in the State of Delaware, subject to the Court of Chancery in the State of Delaware having personal jurisdiction over the defendants. The forum selection provision is not intended to apply to claims arising under the Securities Act or the Exchange Act. To the extent the provision could be constructed to apply to such claims, there is uncertainty as to whether a court would enforce such provision in connection with such claims. The A&R Charter also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of, and to have consented to, the provisions of Article 8 of the A&R Charter. Stockholders will not be deemed, by operation of Article 8 of the A&R Charter alone, to have waived claims arising under the federal securities laws and the rules and regulations promulgated thereunder. 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 A&R Charter is inapplicable or unenforceable.

If any action the subject matter of which is within the scope of the forum selection provision described in the preceding paragraph is filed in a court other than the Court of Chancery (or, if the Court of Chancery does not have jurisdiction, another state court or a federal court located within the State of Delaware) (a "Foreign Action") in the name of any stockholder, such stockholder shall be deemed to have consented to (i) the personal jurisdiction of the state and federal courts located within the State of Delaware in connection with any action brought in any such court to enforce the forum selection provision (a "Foreign Enforcement Action") and (ii) having service of process made upon such stockholder in any such Foreign Enforcement Action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder.

Rule 144

Pursuant to Rule 144, a person who has beneficially owned restricted shares of HighPeak Energy's voting common stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of HighPeak Energy's affiliates at the time of, or at any time during the three months preceding, a sale and (ii) HighPeak Energy is subject to the Exchange Act periodic reporting requirements for at least three months before the sale and has filed all required reports under Section 13 or 15(d) of the Exchange Act during the twelve months (or such shorter period as HighPeak Energy was required to file reports) preceding the sale.

Persons who have beneficially owned restricted shares of HighPeak Energy's voting common stock for at least six months but who are HighPeak Energy's affiliates at the time of, or at any time during the three months preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of:

- 1% of the total number of shares of such securities then-outstanding; or
- the average weekly reported trading volume of such securities during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales by HighPeak Energy's affiliates under Rule 144 are also limited by manner of sale provisions and notice requirements and to the availability of current public information about us.

Restrictions on the Use of Rule 144 by Shell Companies or Former Shell Companies

Rule 144 is not available for the resale of securities initially issued by shell companies (other than business combination related shell companies) or issuers that have been at any time previously a shell company. However, Rule 144 also includes an important exception to this prohibition if the following conditions are met:

- the issuer of the securities that was formerly a shell company has ceased to be a shell company;
- the issuer of the securities is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act;
- the issuer of the securities has filed all Exchange Act reports and materials required to be filed, as applicable, during the preceding twelve months (or such shorter period that the issuer was required to file such reports and materials), other than Current Reports on Form 8-K; and
- at least one year has elapsed from the time that the issuer filed current Form 10 type information with the SEC reflecting its status as an entity that is not a shell company.

Listing of Securities

HighPeak Energy's common stock is listed for trading on the Nasdaq under the symbol "HPK."

PLAN OF DISTRIBUTION

We may sell the securities offered by this prospectus in any one or more of the following ways from time to time:

- to or through one or more underwriters, initial purchasers, brokers, or dealers;
- through agents to investors or the public;
- in short or long transactions;
- through put or call option transactions relating to our common stock;
- directly to agents or other purchasers;
- in “at the market offerings” within the meaning of Rule 415(a)(4) of the Securities Act, to or through a market maker or into an existing trading market, on an exchange or otherwise;
- through a combination of any such methods of sale; or
- through any other method described in the applicable prospectus supplement.

The applicable prospectus supplement will set forth the terms of the offering and the method of distribution and will identify any firms acting as underwriters, initial purchasers, dealers, or agents in connection with the offering, including:

- the terms of the offering;
- the names of any underwriters, dealers, or agents;
- the name or names of any managing underwriter or underwriters;
- the purchase price of the securities and the proceeds to us from the sale;
- any options (whether or not for over-allotments) under which the underwriters may purchase additional shares of common stock from us;
- any underwriting discounts, concessions, commissions, or agency fees and other items constituting compensation to underwriters, dealers, or agents;
- any delayed delivery arrangements;
- any public offering price;
- any discounts or concessions allowed or re-allowed or paid by underwriters or dealers to other dealers; or
- any securities exchange or market on which the common stock offered in the prospectus supplement may be listed.

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

During and after an offering through underwriters, the underwriters may purchase and sell the securities in the open market. These transactions may include overallotment and stabilizing transactions and purchases to cover syndicate short positions created in connection with the offering. The underwriters may also impose a penalty bid, which means that selling concessions allowed to syndicate members or other broker-dealers for the offered securities sold for their account may be reclaimed by the syndicate if the offered securities are repurchased by the syndicate in stabilizing or covering transactions. These activities may stabilize, maintain, or otherwise affect the market price of the offered securities, which may be higher than the price that might otherwise prevail in the open market. If commenced, the underwriters may discontinue these activities at any time.

Some or all of the securities that we offer through this prospectus may be new issues of securities with no established trading market. Any underwriters to whom we sell our securities for public offering and sale may make a market in those securities, but they will not be obligated to do so and they may discontinue any market making at any time without notice. Accordingly, we cannot assure you of the liquidity of, or continued trading markets for, any securities that we offer.

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

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

We may sell the securities directly in transactions not involving underwriters, dealers, or agents.

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

Underwriters, dealers, and agents that participate in the distribution of the securities may be underwriters as defined in the applicable securities laws and any discounts or commissions they receive from us and any profit on their resale of the securities may be treated as underwriting discounts and commissions under the applicable securities laws. We will identify in the applicable prospectus supplement any underwriters, dealers, or agents and will describe their compensation. We may have agreements with the underwriters, dealers, and agents to indemnify them against specified civil liabilities, including liabilities under the applicable securities laws.

Underwriters, dealers, and agents may engage in transactions with or perform services for us in the ordinary course of their businesses for which they may receive customary fees and reimbursement of expenses.

We may use underwriters with whom we have a material relationship. We will describe the nature of such relationship in the applicable prospectus supplement.

Under the securities laws of some states, the securities offered by this prospectus may be sold in those states only through registered or licensed brokers or dealers.

We may enter into hedging transactions with broker-dealers and the broker-dealers may engage in short sales of the securities in the course of hedging the positions they assume with us, including, without limitation, in connection with distributions of the securities by those broker-dealers. We may enter into option or other transactions with broker-dealers that involve the delivery of the securities offered hereby to the broker-dealers, who may then resell or otherwise transfer those securities. We may also loan or pledge the securities offered hereby to a broker-dealer and the broker-dealer may sell the securities offered hereby so loaned or upon a default may sell or otherwise transfer the pledged securities offered hereby.

LEGAL MATTERS

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

EXPERTS

The balance sheet of HighPeak Energy, Inc. as of December 31, 2024 and the related consolidated statements of operations, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2024 incorporated by reference in this prospectus have been audited by Weaver and Tidwell, L.L.P., independent registered public accounting firm, as stated in their report appearing herein and is included upon reliance of the report of such firm given upon their authority as experts in accounting and auditing.

The information included herein regarding estimated quantities of proved reserves of the Company, the future net revenues from those reserves and their present value as of December 31, 2024 and December 31, 2023, are based on the proved reserves report prepared by Cawley, Gillespie & Associates, Inc. These estimates are included herein in reliance upon the authority of such firm as an expert in these matters.



HighPeak Energy, Inc.

Up to 108,764,359 Shares of Common Stock

The securities to be offered using this combined prospectus include the resale of up to 108,764,359 shares of our common stock, par value \$0.001 per share (“common stock”) by the selling stockholders named herein.

Pursuant to this prospectus, the selling securityholders are permitted to offer the securities from time to time, if and to the extent as they may determine, through public or private transactions or through other means described in the section of this prospectus entitled “Plan of Distribution” at prevailing market prices, at prices different than prevailing market prices or at privately negotiated prices. The selling securityholders may sell shares through agents they select or through underwriters and dealers they select. The selling securityholders also may sell their securities directly to investors. If the selling securityholders use agents, underwriters or dealers to sell their shares, we will name such agents, underwriters or dealers and describe any applicable commissions or discounts in a supplement to this prospectus if required.

We are registering the offer and sale of 29,057,783 shares of common stock pursuant to the registration rights afforded pursuant to the Forward Purchase Agreement. We are further registering the offer and sale of 79,706,576 shares of common stock pursuant to the registration rights afforded pursuant to that certain Registration Rights Agreement, dated as of August 21, 2020 (the “Registration Rights Agreement”) by and among the Company, Sponsor, HighPeak I, HighPeak II and certain other security holders named therein. We have agreed to bear all expenses incurred in connection with the registration of these securities. The selling securityholders will pay or assume underwriting fees, discounts and commissions or similar charges, if any, incurred in the sale of these securities.

The selling securityholders identified in this prospectus are offering all of the common stock included under this prospectus (as applicable to each selling securityholder) in the section entitled “Selling Securityholders.” We will not receive any proceeds from the sale of these securities by the selling securityholders.

Our common stock is traded on the Nasdaq Global Market (the “Nasdaq”) under the symbol “HPK”. On October 30, 2025, the closing price of our common stock was \$6.36.

We are an “emerging growth company” as that term is used in the Jumpstart Our Business Startups Act of 2012, and, as such, have elected to avail ourselves of certain reduced public company reporting requirements for this prospectus and future filings.

You should read carefully this prospectus, the documents incorporated by reference in this prospectus and any prospectus supplement before you invest. See “Risk Factors” beginning on page 5 of this prospectus for information on certain risks related to the purchase of our securities.

The selling securityholders may sell the securities directly or to or through underwriters or dealers, and also to other purchasers or through agents. The names of any underwriters or agents that are included in a sale of securities to you, and any applicable commissions or discounts, will be stated in any accompanying prospectus supplement. In addition, the underwriters, if any, may over-allot a portion of the securities.

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

The date of this prospectus is _____, 2025.

TABLE OF CONTENTS

	<u>Page</u>
ABOUT THIS PROSPECTUS	ii
WHERE YOU CAN FIND MORE INFORMATION	iii
DOCUMENTS INCORPORATED BY REFERENCE	1
CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS	2
ABOUT HIGHPEAK ENERGY, INC.	4
RISK FACTORS	5
USE OF PROCEEDS	6
DESCRIPTION OF SECURITIES	7
SELLING SECURITYHOLDERS	10
PLAN OF DISTRIBUTION	12
LEGAL MATTERS	15
EXPERTS	15

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the SEC using a “shelf” registration process. Under this shelf registration process, the selling securityholders may offer and sell from time to time the securities described in this prospectus in one or more offerings. This prospectus provides you with a general description of the securities that are registered hereunder that may be offered by the selling securityholders. Each time we offer the securities, we and the selling securityholders will provide you with a prospectus supplement that will describe, among other things, the specific amounts and prices of the securities being offered and the terms of the offering.

Any prospectus supplement may add, update, or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in any prospectus supplement. The information in this prospectus is accurate as of its date. Additional information, including our financial statements and the notes thereto, is incorporated in this prospectus by reference to our reports filed with the SEC. Therefore, before you invest in our securities, you should carefully read this prospectus and any prospectus supplement relating to the securities offered to you together with the additional information incorporated by reference in this prospectus and any prospectus supplement (including the documents described under the heading “Where You Can Find More Information” and “Documents Incorporated by Reference” in both this prospectus and any prospectus supplement).

You should rely only on the information contained in or incorporated by reference in this prospectus or any prospectus supplement. Neither we nor the selling securityholders have authorized any other person to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. Neither we, the selling securityholders nor anyone acting on our behalf is making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should not assume that the information incorporated by reference or provided in this prospectus or any prospectus supplement is accurate as of any date other than the date on the front of those documents.

Unless the context otherwise requires, throughout this prospectus and any applicable prospectus supplement, the words “we,” “us,” the “registrant,” “the Company,” or “HighPeak Energy” refer to HighPeak Energy, Inc. and the term “securities” refers to the shares of our common stock registered hereunder.

WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement with the SEC under the Securities Act of 1933, as amended (the “Securities Act”), that registers the offer and sale of the securities covered by this prospectus. The registration statement, including the exhibits attached thereto and incorporated by reference therein, contains additional relevant information about us. In addition, we file annual, quarterly and other reports and other information with the SEC. The SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. Our SEC filings are available on the SEC’s website at www.sec.gov.

We make available free of charge on or through our website, www.highpeakenergy.com, our filings with the SEC pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. We make our website content available for information purposes only. Information contained on our website is not incorporated by reference into this prospectus and does not constitute a part of this prospectus.

DOCUMENTS INCORPORATED BY REFERENCE

The SEC allows us to “incorporate by reference” the information we have filed with the SEC. This means that we can disclose important information to you without actually including the specific information in this prospectus by referring you to other documents filed separately with the SEC. The information incorporated by reference is an important part of this prospectus. 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 documents listed below and any filings we make with the SEC under Sections 13(a), 13(c), 14, or 15(d) of Exchange Act (excluding information deemed to be furnished and not filed with the SEC), after the date on which the registration statement was initially filed with the SEC (including all such documents that we may file with the SEC after the date the registration statement was initially filed and prior to the effectiveness of the registration statement) until all offerings under the registration statement of which this prospectus forms a part are completed or terminated:

- our [Annual Report on Form 10-K](#) for the year ended December 31, 2024 filed on March 10, 2025, including those portions of our definitive proxy statement on [Schedule 14A](#), filed on April 16, 2025, incorporated by reference therein;
- our Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2025](#) and [June 30, 2025](#), filed on May 12, 2025 and August 11, 2025, respectively;
- our Current Reports on Form 8-K filed on [June 3, 2025](#), [June 30, 2025](#), [August 4, 2025](#), [September 15, 2025](#) and [September 16, 2025](#); and
- the description of our common stock contained in our Registration Statement on [Form 8-A12B](#) filed on August 19, 2020, as amended by the Amendment No. 1 on [Form 8-A12B/A](#) filed on August 20, 2020, including any amendments or reports that we may file in the future for the purpose of updating such description.

These reports contain important information about us, our financial condition and our results of operations.

You may obtain copies of any of the documents incorporated by reference in this prospectus from the SEC through the SEC’s website at the address provided above. You also may request a copy of any document incorporated by reference in this prospectus (including exhibits to those documents specifically incorporated by reference in this prospectus), at no cost, by contacting us at:

HighPeak Energy, Inc.
Attention: Investor Relations
421 W. 3rd Street, Suite 1000
Fort Worth, Texas 76012
(817) 850-9200

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

The information in this prospectus includes “forward-looking statements” within the meaning of Section 27A of the Securities Act, and Section 21E of the Exchange Act. All statements other than statements of historical facts included or incorporated by reference in this prospectus, including, without limitation, statements regarding HighPeak Energy’s future financial position, business strategy, budgets, projected revenues, projected costs, and plans and objectives of management for future operations are forward-looking statements. Such forward-looking statements are based on the beliefs of management, as well as assumptions made by, and information currently available to, the Company’s management. In addition, forward-looking statements generally can be identified by the use of forward-looking terminology such as “believes,” “plans,” “expects,” “anticipates,” “forecasts,” “intends,” “continue,” “may,” “will,” “could,” “should,” “future,” “potential,” “estimate” or the negative of such terms and similar expressions as they relate to the Company are intended to identify forward-looking statements which are generally not historical in nature. The forward-looking statements are based on management’s current expectations, assumptions, estimates and projections about the Company and the industry in which the Company operates. Although the Company believes that the expectations and assumptions reflected in the forward-looking statements are reasonable as and when made, they involve risks and uncertainties that are difficult to predict and, in many cases, beyond the Company’s control. In addition, the Company may be subject to currently unforeseen risks that may have a materially adverse effect on it. Accordingly, no assurances can be given that the actual events and results will not be materially different from the anticipated results described in the forward-looking statements. Readers are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date hereof. The Company undertakes no duty to publicly update these statements except as required by law. Important factors that could cause actual results to differ materially from the Company’s expectations include, but are not limited to, the Company’s assumptions regarding the following factors.

In addition, HighPeak Energy cautions you that forward-looking statements regarding HighPeak Energy, which are contained in this prospectus, are also subject to the following factors:

- the supply and demand for and market prices of crude oil, NGL, natural gas and other products or services, and the associated impact of our hedging policies relating thereto;
- inflation rates, the impacts of associated monetary policy responses, including increased or decreased interest rates and resulting pressures on economic growth, U.S. trade policy and the imposition of and changes to tariffs;
- political instability or armed conflict in crude oil or natural gas producing regions, such as the ongoing wars between Russia and Ukraine and the Israel-Hamas conflict;
- volatility in the political, legal and regulatory environments;
- political and regulatory uncertainties;
- our liquidity, cash flow and access to capital;
- the availability of capital resources;
- our ability to refinance or pay, when due, the principal of, interest or other amounts due in respect of our indebtedness;
- production and reserve levels;
- drilling and completion risks;
- economic and competitive conditions;
- the impacts of revising our drilling plan during the year transitioning to an increased or decreased rig count from time to time;

- severe weather conditions;
- epidemics or pandemics, including the effects of public health concerns and the impact of continued actions taken by governmental authorities and other third parties in response to a pandemic and their impact on commodity prices, supply and demand considerations, and storage capacity;
- the availability of goods and services and supply chain issues;
- legislative, regulatory, or policy changes;
- regulatory and related policy actions intended by federal, state and/or local governments to reduce fossil fuel use and associated carbon emissions, to drive the substitution of renewable forms of energy for crude oil and natural gas, which may over time reduce demand for crude oil, NGL and natural gas, including as a result of the Inflation Reduction Act of 2022 (“IRA 2022”) or otherwise;
- our ability to predict and manage the effects of actions of OPEC and OPEC+ and agreements to set and maintain production levels;
- cyber-attacks;
- occurrence of property acquisitions or divestitures;
- the integration of acquisitions;
- capital markets and our ability to access such markets on attractive terms or at all, and related risks such as general credit, liquidity, market and interest-rate risks; and
- the results of our ongoing strategic alternatives process.

Should one or more of the risks or uncertainties described in this prospectus occur, or should underlying assumptions prove incorrect, actual results and plans could differ materially from those expressed in any forward-looking statements. Additional information concerning these and other factors that may impact the operations and projections discussed herein can be found in the section entitled “Risk Factors” herein and in HighPeak Energy’s periodic filings with the SEC. HighPeak Energy’s SEC Filings are available publicly on the SEC’s website at www.sec.gov.

ABOUT HIGHPEAK ENERGY, INC.

HighPeak Energy, Inc., a Delaware corporation, formed in October 2019, is an independent crude oil and natural gas exploration and production company that explores for, develops and produces crude oil, NGL and natural gas in the Permian Basin in West Texas, more specifically, the Midland Basin. The Company's assets are located primarily in Howard and Borden Counties, Texas, and to a lesser extent Scurry and Mitchell Counties, which lie within the northeastern part of the crude oil-rich Midland Basin. As of June 30, 2025, the assets consisted of two highly contiguous leasehold positions of approximately 154,858 gross (143,826 net) acres, approximately 68% of which were held by production, with an average working interest of 93%. Our acreage is composed of two core areas, Flat Top primarily in the northern portion of Howard County extending into southern Borden County, southwest Scurry County and northwest Mitchell County and Signal Peak in the southern portion of Howard County. We operate approximately 98% of the net acreage across the Company's assets and more than 90% of the net operated acreage provides for horizontal wells with lateral lengths of 10,000 feet or greater. For the six months ended June 30, 2025, approximately 86% and 14% of sales volumes from the assets were attributable to liquids (both crude oil and NGL) and natural gas, respectively. As of June 30, 2025, HighPeak Energy was developing its properties using one (1) drilling rig and one (1) frac crew and expects to average one to two (1-2) drilling rigs and approximately one (1) frac crew during the remainder of 2025 under our current development plan. Our principal executive offices are located at 421 W 3rd Street, Fort Worth, Texas 76102, and our telephone number is (817) 850-9200. Our website address is www.highpeakenergy.com. The information on our website is not part of this prospectus.

Our principal executive offices are located at 421 W 3rd Street, Suite 1000, Fort Worth, Texas 76102, and our telephone number is (817) 850-9200. Our website address is www.highpeakenergy.com. The information on our website is not part of this prospectus.

Implications of Being an Emerging Growth Company

We are an "emerging growth company" as defined in the JOBS Act enacted in April 2012. As a result, we may take advantage of reduced reporting requirements that are otherwise applicable to public companies, including delaying auditor attestation of internal control over financial reporting, providing only two years of audited financial statements and related Management's Discussion and Analysis of Financial Condition and Results of Operations, and reducing executive compensation disclosures.

We will remain an emerging growth company until the earlier to occur of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of our business combination, which will be August 21, 2025, (b) in which we have total annual gross revenue of at least \$1.235 billion, or (c) in which we are deemed to be a "large accelerated filer" under the rules of the SEC, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior July 31st and (2) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in the registration statement of which this prospectus is a part and may elect to take advantage of other reduced reporting requirements in future filings. Additionally, we are subject to an extended transition period for complying with new or revised accounting standards. As a result, the information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests.

RISK FACTORS

An investment in our securities involves a significant degree of risk. Before you invest in our securities, you should carefully consider those risk factors included in our most recent Annual Report on Form 10-K, any subsequently filed Quarterly Reports on Form 10-Q and any subsequently filed Current Reports on Form 8-K, each of which is incorporated herein by reference, and those risk factors that may be included in any applicable prospectus supplement, together with all of the other information included in this prospectus, any prospectus supplement and the documents we incorporate by reference, in evaluating an investment in our securities. If any of these risks were actually to occur, our business, financial condition or results of operations could be materially adversely affected. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations and financial condition. Please read “Cautionary Note Regarding Forward-Looking Statements.”

USE OF PROCEEDS

We will not receive any proceeds from the sale of common stock to be offered by the selling securityholders pursuant to this prospectus. Any proceeds from the sales of common stock under this prospectus will be received by the selling securityholders. However, pursuant to the Registration Rights Agreement, we will pay the expenses, other than underwriting discounts and commissions and brokerage fees, associated with the sales of common stock sold by the selling securityholders pursuant to this prospectus.

DESCRIPTION OF SECURITIES

The following description of our common stock is not complete and may not contain all the information you should consider before investing in our common stock. This description is a summary of certain provisions contained in, and is qualified in its entirety by reference to, our second amended and restated certificate of incorporation (the “A&R Charter”), and our amended and restated bylaws (the “Bylaws”).

Authorized and Outstanding Common Stock

The A&R Charter authorizes the issuance of 600,000,000 shares of our common stock and 10,000,000 shares of preferred stock, par value \$0.0001 per share. The outstanding shares of our common stock are duly authorized, validly issued, fully paid and non-assessable. Common stockholders of record are entitled to one vote for each share held on all matters to be voted on by stockholders. As of the date of this prospectus, there were 125,587,093 shares of our common stock issued and outstanding.

Please see our registration statement on Form 8-A12B (File No. 001-39464) filed August 19, 2020, as amended by the Amendment No. 1 on Form 8-A12B/A filed on August 20, 2020, including any amendments or reports that we may file in the future for the purpose of updating such description, which is incorporated by reference herein, for a description of our common stock.

Transfer Agent and Registrar

The Transfer Agent for HighPeak Energy’s common stock is Continental. HighPeak Energy has agreed to indemnify Continental in its roles as Transfer Agent, its agents and each of its stockholders, directors, officers and employees against all liabilities, including judgments, costs and reasonable counsel fees that may arise out of acts performed or omitted for its activities in that capacity, except for any liability due to any gross negligence, willful misconduct or bad faith of the indemnified person or entity.

Certain Anti-Takeover Provisions of Delaware Law and HighPeak Energy’s A&R Charter and Bylaws

HighPeak Energy is subject to the provisions of Section 203 of the Delaware General Corporation Law (“DGCL”) regulating corporate takeovers. This statute prevents certain Delaware corporations, under certain circumstances, from engaging in a “business combination” with:

- a stockholder who owns 15% or more of HighPeak Energy’s outstanding voting stock (otherwise known as an “interested stockholder”);
- an affiliate of an interested stockholder; or
- an associate of an interested stockholder, for three years following the date that the stockholder became an interested stockholder.

A “business combination” includes a merger or sale of more than 10% of HighPeak Energy’s assets. However, the above provisions of Section 203 do not apply if:

- the board of directors of HighPeak Energy (the “Board”) approves the transaction that made the stockholder an “interested stockholder,” prior to the date of the transaction;
- after the completion of the transaction that resulted in the stockholder becoming an interested stockholder, that stockholder owned at least 85% of HighPeak Energy’s voting stock outstanding at the time the transaction commenced, other than statutorily excluded shares of voting common stock; or
- on or subsequent to the date of the transaction, the business combination is approved by the Board and authorized at a meeting of HighPeak Energy’s stockholders, and not by written consent, by an affirmative vote of at least two-thirds of the outstanding voting stock not owned by the interested stockholder.

HighPeak Energy’s authorized but unissued voting common stock and preferred stock are available for future issuances without stockholder approval and could be utilized for a variety of corporate purposes, including future offerings to raise additional capital, acquisitions and employee benefit plans. The existence of authorized but unissued and unreserved voting common stock and preferred stock could render more difficult or discourage an attempt to obtain control of HighPeak Energy by means of a proxy contest, tender offer, merger or otherwise.

Written Consent by Stockholders

HighPeak Energy's A&R Charter provides that prior to the first date in which Sponsor, HighPeak Energy Partners, LP, HighPeak Energy Partners II, LP, and each of their respective affiliates and certain permitted transferees (collectively, the "HighPeak Group") no longer collectively beneficially owns more than 50% of the outstanding HighPeak Energy voting securities, HighPeak Energy stockholders may take action by written consent of the holders of not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Before such time, any action required or permitted to be taken by HighPeak Energy's stockholders that is approved in advance by the Board may be effected without a meeting, without prior notice and without a vote of stockholders, if a consent or consents in writing, setting forth the action so taken, is or are signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. If any such action by written consent is taken then HighPeak Energy will notify its stockholders of the same.

Special Meeting of Stockholders

The Bylaws provide that special meetings of its stockholders may be called only by a majority vote of the entire Board, by HighPeak Energy's President or by HighPeak Energy's Chairman.

Advance Notice Requirements for Stockholder Proposals and Director Nominations

The Bylaws provide that stockholders seeking to bring business before HighPeak Energy's annual meeting of stockholders, or to nominate candidates for election as directors at HighPeak Energy's annual meeting of stockholders, must provide timely notice of their intent in writing. To be timely, a stockholder's notice will need to be received by the Company's secretary at HighPeak Energy's principal executive offices not later than the close of business on the ninetieth (90th) day nor earlier than the close of business on the one hundred twentieth (120th) day prior to the anniversary date of the immediately preceding annual meeting of stockholders. Pursuant to Rule 14a-8 of the Exchange Act, proposals seeking inclusion in HighPeak Energy's Annual Proxy Statement must comply with the notice periods contained therein. The Bylaws also specify certain requirements as to the form and content of a stockholders' meeting. These provisions may preclude HighPeak Energy's stockholders from bringing matters before HighPeak Energy's annual meeting of stockholders or from making nominations for directors at HighPeak Energy's annual meeting of stockholders.

Exclusive Forum

The A&R Charter provides that a stockholder bringing a claim subject to Article 8 of the A&R Charter will be required to bring that claim in the Court of Chancery in the State of Delaware, subject to the Court of Chancery in the State of Delaware having personal jurisdiction over the defendants. The forum selection provision is not intended to apply to claims arising under the Securities Act or the Exchange Act. To the extent the provision could be constructed to apply to such claims, there is uncertainty as to whether a court would enforce such provision in connection with such claims. The A&R Charter also provides that any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock will be deemed to have notice of, and to have consented to, the provisions of Article 8 of the A&R Charter. Stockholders will not be deemed, by operation of Article 8 of the A&R Charter alone, to have waived claims arising under the federal securities laws and the rules and regulations promulgated thereunder. 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 A&R Charter is inapplicable or unenforceable.

If any action the subject matter of which is within the scope of the forum selection provision described in the preceding paragraph is filed in a court other than the Court of Chancery (or, if the Court of Chancery does not have jurisdiction, another state court or a federal court located within the State of Delaware) (a "Foreign Action") in the name of any stockholder, such stockholder shall be deemed to have consented to (i) the personal jurisdiction of the state and federal courts located within the State of Delaware in connection with any action brought in any such court to enforce the forum selection provision (a "Foreign Enforcement Action") and (ii) having service of process made upon such stockholder in any such Foreign Enforcement Action by service upon such stockholder's counsel in the Foreign Action as agent for such stockholder.

Rule 144

Pursuant to Rule 144, a person who has beneficially owned restricted shares of HighPeak Energy's voting common stock for at least six months would be entitled to sell their securities provided that (i) such person is not deemed to have been one of HighPeak Energy's affiliates at the time of, or at any time during the three months preceding, a sale and (ii) HighPeak Energy is subject to the Exchange Act periodic reporting requirements for at least three months before the sale and has filed all required reports under Section 13 or 15(d) of the Exchange Act during the twelve months (or such shorter period as HighPeak Energy was required to file reports) preceding the sale.

Persons who have beneficially owned restricted shares of HighPeak Energy's voting common stock for at least six months but who are HighPeak Energy's affiliates at the time of, or at any time during the three months preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of:

- 1% of the total number of shares of such securities then-outstanding; or
- the average weekly reported trading volume of such securities during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale.

Sales by HighPeak Energy's affiliates under Rule 144 are also limited by manner of sale provisions and notice requirements and to the availability of current public information about us.

Restrictions on the Use of Rule 144 by Shell Companies or Former Shell Companies

Rule 144 is not available for the resale of securities initially issued by shell companies (other than business combination related shell companies) or issuers that have been at any time previously a shell company. However, Rule 144 also includes an important exception to this prohibition if the following conditions are met:

- the issuer of the securities that was formerly a shell company has ceased to be a shell company;
- the issuer of the securities is subject to the reporting requirements of Section 13 or 15(d) of the Exchange Act;
- the issuer of the securities has filed all Exchange Act reports and materials required to be filed, as applicable, during the preceding twelve months (or such shorter period that the issuer was required to file such reports and materials), other than Current Reports on Form 8-K; and
- at least one year has elapsed from the time that the issuer filed current Form 10 type information with the SEC reflecting its status as an entity that is not a shell company.

Listing of Securities

HighPeak Energy's common stock is listed for trading on the Nasdaq under the symbols "HPK".

SELLING SECURITYHOLDERS

Up to 29,057,783 shares of our common stock may be offered for resale by certain selling securityholders under this prospectus, including up to 7,776,549 shares of our common stock owned by the selling securityholders named herein pursuant to the Forward Purchase Agreement. Further, 79,706,576 shares of our common stock may be offered for resale by certain selling securityholders under this prospectus pursuant to the Registration Rights Agreement, dated as of August 21, 2020, by and among HighPeak Energy, Sponsor, HighPeak I, HighPeak II, LP and certain other security holders named therein (the “Registration Rights Agreement”).

The following table sets forth the number of shares of our common stock being offered by the selling securityholders (as applicable), including their donees, pledgees, transferees or other successors-in-interest, subject to the transfer restrictions described in this prospectus and the documents incorporated by reference herein, based on the assumptions that: (i) all shares of our common stock, and (ii) no other shares of our common stock will be acquired prior to completion of this offering by the selling securityholders. The following table also sets forth the number of shares known to us, based upon written representations by the selling securityholders, to be beneficially owned by the selling securityholders (as applicable) as of the date of this prospectus. The selling securityholders are not making any representation that any shares of our common stock covered by this prospectus will be offered for sale. The selling securityholders reserve the right to accept or reject, in whole or in part, any proposed sale of the shares of our common stock. For purposes of the table below, we assume that all of the shares of our common stock covered by this prospectus will be sold. As of the date of this prospectus, the selling securityholders have advised us that they do not currently have any plan of distribution with respect to their shares. Unless otherwise indicated, the address of each selling securityholders named in the table below is 421 W. 3rd Street, Suite 1000, Fort Worth, Texas 76102.

Name and Address of Selling Securityholders	Shares of Common Stock Beneficially Owned Prior to Offering	Number of Shares of Common Stock Available Pursuant to this Prospectus	Number of Shares of Common Stock Beneficially Owned After the Offering	Percentage of Shares of Common Stock Beneficially Owned After the Offering
John Paul DeJoria Family Trust (2)	15,457,152	15,457,152(1)	—	—
DeJoria Dynasty Trust (3)	516,500	516,500(1)	—	—
Jack Hightower (4)	13,084,131	13,084,131(1)	—	—
HighPeak Pure Acquisition, LLC (5)	3,323,522(5)	3,323,522(7)	—	—
HighPeak Energy, LP (8)	39,642,461(6)	39,642,461(7)	—	—
HighPeak Energy II, LP (9)	36,740,593(6)	36,740,593(7)	—	—

- (1) Represents the number of shares of our common stock being registered on behalf of the selling securityholders pursuant to this registration statement.
- (2) Represents 13,868,672 shares of our common stock owned by The John Paul DeJoria Family Trust, and an additional 1,588,480 shares of our common stock which may be acquired from HighPeak Pure Acquisition, LLC. The address of the John Paul DeJoria Family Trust is 109 West 7th Street, Suite 200, Georgetown, Texas 78626.
- (3) Represents 516,500 shares of our common stock owned by DeJoria Dynasty Trust. The address of the DeJoria Dynasty Trust is 109 West 7th Street, Suite 200, Georgetown, Texas 78626.
- (4) Represents (i) 7,117,995 shares of our common stock issuable upon the exercise of stock options that have been vested as of September 15, 2025, (ii) 1,385,500 shares of restricted stock units that fully vested as of the Mr. Hightower’s retirement from the Company, of which 545,195 shares of common stock were withheld by the Company to satisfy Mr. Hightower’s tax withholding obligations, resulting in a net issuance to Mr. Hightower of 840,305 shares of common stock, (iii) 1,532,478 shares of common stock distributed by HighPeak Pure Acquisition, LLC to Mr. Hightower, and (iv) 2,336 shares of common stock beneficially owned by Mr. Hightower’s family member.
- (5) Represents 3,323,522 shares of our common stock issued to Sponsor pursuant to the Business Combination Agreement.
- (6) Includes the number of shares of our common stock issued pursuant to the Business Combination Agreement.
- (7) Represents shares of our common stock being registered on behalf of the applicable selling securityholders pursuant to their rights under the Registration Rights Agreement pursuant to this registration statement.
- (8) Represents 39,642,461 shares of our common stock issued to HighPeak Energy, LP, a Delaware limited partnership (“HighPeak I”) as merger consideration pursuant to the Business Combination Agreement. The general partner of HighPeak I is HighPeak Energy GP, LLC, a Delaware limited liability company (“HPE GP I”). The sole member of HPE GP I is HighPeak Energy Partners, LP, a Delaware limited partnership (“HPEP I”), whose general partner is HighPeak Energy Partners GP, LP, a Delaware limited partnership (“HPEP GP I”). The general partner of HPEP GP I is HighPeak GP, LLC, a Delaware limited liability company (“HP GP I”). HP GP I is managed by a three-member committee composed of Messrs. Michael Hollis, Daniel Silver and Ryan Hightower. A majority of the members of HP GP I and John Paul DeJoria Family Trust (“JPDFT”), upon 61 days prior written notice, has the right to appoint all managers to the board of managers of HP GP I. Pursuant to that certain Stockholders’ Agreement, dated as of August 21, 2020 (the “Stockholders’ Agreement”), HighPeak I designated Mr. Silver as its Designated Director (as defined therein) to serve on the Board.
- (9) Represents 36,740,593 shares of our common stock issued to HighPeak Energy II, LP, a Delaware limited partnership (“HighPeak II”) as merger consideration pursuant to the Business Combination Agreement. The general partner of HighPeak II is HighPeak Energy GP II, LLC, a Delaware limited liability company (“HPE GP II”). The sole member of HPE GP II is HighPeak Energy Partners II, LP, a Delaware limited partnership (“HPEP II”). The general partner of HPEP II is HighPeak Energy Partners GP II, LP, a Delaware limited partnership (“HPEP GP II”). The general partner of HPEP GP II is HighPeak Energy GP II, LLC, a Delaware limited liability company (“HP GP II”). HP GP II is managed by a three-member committee composed of Messrs. Hollis, Silver and Hightower. A majority of the members of HP GP II and JPDFT, upon 61 days prior written notice, have the right to appoint all managers to the board of managers of HP GP II. Pursuant to that certain Stockholders’ Agreement, HighPeak II designated Mr. Silver as its Designated Director (as defined therein) to serve on the Board.

PLAN OF DISTRIBUTION

This prospectus includes the registration for resale of (i) 79,706,576 shares of common stock issued as merger consideration in connection with the business combination and (ii) 7,776,549 shares of common stock issued pursuant to the terms Forward Purchase Agreement. As of the date of this prospectus, the selling securityholders have advised us that they do not currently have any plan of distribution. Unless the context otherwise requires, as used in this prospectus, “selling securityholders” includes the selling securityholders named in the table included in the section above entitled “Selling Securityholders” and donees, pledgees, transferees or other successors-in-interest selling securities received from the selling securityholders as a gift, pledge, partnership distribution or other transfer after the date of this prospectus.

The selling securityholders may offer and sell all or a portion of the securities covered by this prospectus from time to time, in one or more or any combination of the following transactions:

- on the Nasdaq, in the over-the-counter market or on any other national securities exchange on which our securities are listed or traded;
- in privately negotiated transactions;
- in underwritten transactions;
- in a block trade in which a broker-dealer will attempt to sell the offered securities as agent but may purchase and resell a portion of the block as principal to facilitate the transaction;
- through purchases by a broker-dealer as principal and resale by the broker-dealer for its account pursuant to this prospectus;
- in ordinary brokerage transactions and transactions in which the broker solicits purchasers;
- through the writing of options (including put or call options), whether the options are listed on an options exchange or otherwise;
- through the distribution of the securities by any selling securityholder to its partners, members or stockholders;
- in short sales entered into after the effective date of the registration statement of which this prospectus is a part; and
- “at the market” or through market makers or into an existing market for the securities.

The selling securityholders may sell the securities at prices then prevailing, related to the then prevailing market price or at negotiated prices. The offering price of the securities from time to time will be determined by us and by the selling securityholders and, at the time of the determination, may be higher or lower than the market price of our securities on the Nasdaq or any other exchange or market.

The selling securityholders may also sell our securities short and deliver these securities to close out their short positions, or loan or pledge the securities to broker-dealers that in turn may sell these securities. The shares may be sold directly or through broker-dealers acting as principal or agent, or pursuant to a distribution by one or more underwriters on a firm commitment or best-efforts basis. The selling securityholders may also enter into hedging transactions with broker-dealers. In connection with such transactions, broker-dealers of other financial institutions may engage in short sales of our securities in the course of hedging the positions they assume with us and with the selling securityholders. The selling securityholders may also enter into options or other transactions with broker-dealers or other financial institutions which require the delivery to such broker-dealer or other financial institution of securities offered by this prospectus, which securities such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction). The selling securityholders also may resell all or a portion of the securities in open market transactions in reliance upon Rule 144 under the Securities Act, provided that they meet the criteria and conform to the requirements of that rule. In connection with an underwritten offering, underwriters or agents may receive compensation in the form of discounts, concessions or commissions from the selling securityholders or from purchasers of the offered securities for whom they may act as agents. In addition, underwriters may sell the securities to or through dealers, and those dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters and/or commissions from the purchasers for whom they may act as agents. The selling securityholders and any underwriters, dealers or agents participating in a distribution of the securities may be deemed to be “underwriters” within the meaning of the Securities Act, and any profit on the sale of the securities by the selling securityholders and any commissions received by broker-dealers may be deemed to be underwriting commissions under the Securities Act.

The selling securityholders may agree to indemnify an underwriter, broker-dealer or agent against certain liabilities related to the sale of the securities, including liabilities under the Securities Act. The selling securityholders have advised us that they have not entered into any agreements, understandings or arrangements with any underwriters or broker-dealers regarding the sale of their securities. Upon our notification by a selling securityholder that any material arrangement has been entered into with an underwriter or broker-dealer for the sale of securities through a block trade, special offering, exchange distribution, secondary distribution or a purchase by an underwriter or broker-dealer, we will file a supplement to this prospectus, if required, pursuant to Rule 424(b) under the Securities Act, disclosing certain material information, including:

- the name of the selling securityholder;
- the number of securities being offered;
- the terms of the offering;
- the names of the participating underwriters, broker-dealers or agents;
- any discounts, commissions or other compensation paid to underwriters or broker-dealers and any discounts, commissions or concessions allowed or reallocated or paid by any underwriters to dealers;
- the public offering price; and
- other material terms of the offering.

In addition, upon being notified by a selling securityholder that a donee, pledgee, transferee or other successor-in-interest intends to sell securities, we will, to the extent required, promptly file a supplement to this prospectus to name specifically such person as a selling securityholder.

The selling securityholders are subject to the applicable provisions of the Exchange Act and the rules and regulations under the Exchange Act, including Regulation M. This regulation may limit the timing of purchases and sales of any of the securities offered in this prospectus by the selling securityholders. The anti-manipulation rules under the Exchange Act may apply to sales of securities in the market and to the activities of the selling securityholders and their affiliates. Furthermore, Regulation M may restrict the ability of any person engaged in the distribution of the securities to engage in market-making activities for the particular securities being distributed for a period of up to five business days before the distribution. The restrictions may affect the marketability of the securities and the ability of any person or entity to engage in market-making activities for the securities.

In compliance with guidelines of the Financial Industry Regulatory Authority (“FINRA”), the maximum compensation or discount to be received by any FINRA member or independent broker or dealer may not exceed 8% of the aggregate amount of securities offered pursuant to this prospectus.

To the extent required, this prospectus may be amended and/or supplemented from time to time to describe a specific plan of distribution. Instead of selling the securities under this prospectus, the selling securityholders may sell the securities in compliance with the provisions of Rule 144 under the Securities Act, if available, or pursuant to other available exemptions from the registration requirements of the Securities Act.

Under the Registration Rights Agreement entered into with the selling securityholders, we agreed to use our commercially reasonable efforts to keep the registration statement of which this prospectus constitutes a part continuously effective under the Securities Act until the date that all Registrable Securities (as defined in the Registration Rights Agreement) covered by this registration statement have ceased to be Registrable Securities.

LEGAL MATTERS

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

EXPERTS

The balance sheet of HighPeak Energy, Inc. as of December 31, 2024 and the related consolidated statements of operations, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2024 included in this prospectus have been audited by Weaver and Tidwell, L.L.P., independent registered public accounting firm, as stated in their report appearing herein and is included upon reliance of the report of such firm given upon their authority as experts in accounting and auditing.

The information included herein regarding estimated quantities of proved reserves of the Company, the future net revenues from those reserves and their present value as of December 31, 2024 and December 31, 2023, are based on the proved reserves report prepared by Cawley, Gillespie & Associates, Inc. These estimates are included herein in reliance upon the authority of such firm as an expert in these matters.



HighPeak Energy, Inc.

Up to \$150,000,000

Common Stock

Prospectus Supplement

Roth Capital Partners

USCA Securities

May 6, 2026
