

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM S-3
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

NRG Energy, Inc.

(Exact name of Registrant as specified in its charter)

Delaware

(State or other Jurisdiction of
Incorporation or Organization)

41-1724239

(IRS Employer
Identification No.)

**1301 McKinney Street
Houston, Texas 77010
(713) 537-3000**

(Address, including Zip Code, and Telephone Number, including Area Code, of Registrant's Principal Executive Offices)

Christine A. Zoino, Esq.
Senior Vice President, Deputy General Counsel and Corporate Secretary

NRG Energy, Inc.
**1301 McKinney Street
Houston, Texas 77010
(713) 537-3000**

(Name, Address, including Zip Code, and Telephone Number, including Area Code, of Agent for Service)

Copy to:

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Jessica Y. Chen, Esq.
White & Case LLP
1221 Avenue of the Americas
New York, NY 10020
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Approximate date of commencement of proposed sale of the securities to the public: From time to time after the effective date of this Registration Statement.

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

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Securities Exchange Act of 1934.

Large accelerated filer

Accelerated filer

Non-accelerated filer

Smaller reporting company

Emerging growth company

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

PROSPECTUS

NRG Energy, Inc.
Up to 24,250,000 Shares of Common Stock
Offered by the Selling Stockholders

This prospectus relates to the proposed offering and resale, from time to time, in amounts, at prices and on terms that will be determined at the time of the applicable offering, by the selling stockholders named herein (the “Selling Stockholders”) of up to 24,250,000 shares of common stock, par value \$0.01 per share of NRG Energy, Inc. (“NRG,” “we,” “our” or “us”), held by the Selling Stockholders and covered by this prospectus. The Selling Stockholders acquired these shares in connection with the consummation of the transactions contemplated by that certain Purchase and Sale Agreement, dated as of May 12, 2025, by and among NRG, NRG East Generation Holdings LLC, a Delaware limited liability company and direct, wholly-owned subsidiary of NRG, NRG Texas LLC, a Delaware limited liability company and direct, wholly-owned subsidiary of NRG, NRG Demand Response Holdings LLC, a Delaware limited liability company and direct, wholly-owned subsidiary of NRG, NRG Gas Development Company, LLC, a Delaware limited liability company and direct, wholly-owned subsidiary of NRG, Lightning Power Holdings, LLC, a Delaware limited liability company, Thunder Generation, LLC, a Delaware limited liability company, CCS Power Holdings, LLC, a Delaware limited liability company, and Linebacker Power Development Funding, LLC, a Delaware limited liability company (the “Acquisition”).

NRG is not selling any common stock under this prospectus, and we will not receive any proceeds from the sale of common stock by the Selling Stockholders. See “Selling Stockholders.”

This prospectus provides you with a general description of the manner in which the Selling Stockholders may offer or sell the common stock. More specific terms may be provided in a prospectus supplement that describes, among other things, the specific amounts and prices of the common stock being offered and the terms of the offering. Such prospectus supplement, if any, may also add, update or change information contained in this prospectus. The Selling Stockholders may offer and sell the common stock to or through one or more underwriters, dealers and agents, or directly to purchasers, on a continuous or delayed basis. The price at which the Selling Stockholders may sell the common stock will be determined by the prevailing market for our common stock or in negotiated transactions that may be at prices other than prevailing market prices. See “Plan of Distribution” elsewhere in this prospectus for more information about how the Selling Stockholders may sell or otherwise dispose of the common stock. Our registration of the common stock does not mean that the Selling Stockholders will offer or sell any common stock. You should read this prospectus and any accompanying prospectus supplement carefully before you invest in our securities.

Our common stock is listed on the New York Stock Exchange (the “NYSE”) and NYSE Texas and trade under the ticker symbol “NRG”.

Investments in our securities involve certain risks. See the section titled “Risk Factors” beginning on page 5 of this prospectus as well as the risk factors and other information contained or incorporated by reference in this prospectus and the applicable prospectus supplement before investing in the securities.

Neither the Securities and Exchange Commission (the “SEC”) nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus is February 2, 2026.

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ABOUT THIS PROSPECTUS

This prospectus relates to the possible resale of common stock, which was issued by us to the Selling Stockholders in connection with the Acquisition.

The information contained in this prospectus is not complete and may be changed. You should rely only on the information provided in or incorporated by reference in this prospectus, any prospectus supplement or other offering materials. Neither we nor the Selling Stockholders have authorized anyone else to provide you with different information. Neither we nor the Selling Stockholders are making an offer of any securities in any jurisdiction where the offer is not permitted. You should not assume that the information in this prospectus, any prospectus supplement, other offering materials or any document incorporated by reference is accurate as of any date other than the date of the document in which such information is contained or such other date referred to in such document, regardless of the time of any sale of a security.

This prospectus is part of an “automatic shelf” registration statement on Form S-3ASR that we filed with the SEC using a “shelf” registration process. Under this shelf process, the Selling Stockholders may sell from time to time the securities described in this prospectus. This prospectus contains a general description of the securities the Selling Stockholders may offer. Each time the Selling Stockholders sell securities, we will provide, to the extent required by law or requested by the Selling Stockholders, a prospectus supplement that will contain specific information about the terms of that offering and the manner in which they may be offered. The prospectus supplement may also add to, update or change information contained in this prospectus. If there is any inconsistency between the information in this prospectus and any prospectus supplement or any related free writing prospectus that we prepare or authorize, you should rely on the information in the prospectus supplement or related free writing prospectus. You should read both this prospectus and any prospectus supplement, together with additional information described under the heading “Where You Can Find More Information,” before making an investment decision. As used in this prospectus, the terms “NRG,” “we,” “us” and “our” refer to NRG Energy, Inc. and not to its subsidiaries, unless the context otherwise requires.

You should rely only on information contained in this prospectus and which is incorporated by reference or the documents to which we have referred you. We and the Selling Stockholders have not authorized anyone to provide you with information that is different or additional. If anyone provides you with different or additional information, you should not rely on it.

This prospectus and any related prospectus supplement or free writing prospectus do not constitute an offer to sell or the solicitation of an offer to buy any securities other than the securities described in this prospectus or an offer to sell or the solicitation of an offer to buy securities in any circumstances in which such offer or solicitation is unlawful.

FORWARD LOOKING STATEMENTS

This prospectus, any prospectus supplement, any related free writing prospectus and the documents incorporated into this prospectus by reference as described under the heading “Where You Can Find More Information” contain “forward-looking” statements, as defined in 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”). Statements that are not historical facts, including statements about beliefs and expectations, are forward-looking statements. These statements discuss potential risks and uncertainties and, therefore, actual results may differ materially.

You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date on which they are made. We do not undertake any obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise. Such forward-looking statements may include, without limitation, statements relating to goals, intentions and expectations as to future trends, plans, events, results of operations or financial condition, or state other information relating to us, based on current beliefs of management as well as assumptions made by, and information currently available to, management.

The words “believes,” “projects,” “anticipates,” “plans,” “expects,” “intends,” “estimates,” “should,” “forecasts,” “targets,” and similar expressions are intended to identify forward-looking statements. These forward-looking statements involve known and unknown risks, uncertainties and other factors, many of which are beyond NRG’s control, that may cause NRG’s actual results, performance and achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. These factors, risks and uncertainties include any factors described under “Risk Factors,” the risk factors incorporated by reference herein, and the following:

- NRG’s ability to obtain and maintain retail market share;
- General economic conditions, changes in the wholesale power and gas markets and fluctuations in the cost of fuel;
- Volatile power and gas supply costs and demand for power and gas, including the impacts of weather;
- The imposition of tariffs and escalation of international trade disputes, and any inflationary impacts resulting therefrom;
- NRG’s inability to realize expected benefits from the integration of the assets and business from its acquisition of a portfolio of natural gas generation and other assets of the Selling Stockholders (the “LS Portfolio”);
- Hazards customary to the power production industry and power generation operations, such as fuel and electricity price volatility, unusual weather conditions, catastrophic weather-related or other damage to facilities, unscheduled or forced generation outages, maintenance or repairs, unanticipated changes to fuel supply costs or availability due to higher demand, shortages, transportation problems or other developments, environmental incidents, or electric transmission or gas pipeline system constraints and the possibility that NRG may not have adequate insurance to cover losses as a result of such hazards;
- The effectiveness of NRG’s risk management policies and procedures and the ability of NRG’s counterparties to satisfy their financial commitments;
- NRG’s ability to enter into contracts to sell power or gas and procure fuel on acceptable terms and prices;
- NRG’s ability to successfully integrate, realize cost savings and manage any acquired businesses;
- NRG’s ability to engage in successful acquisitions and divestitures, as well as other mergers and acquisitions activity;
- NRG’s, and its counterparties’, ability to successfully complete the development and construction of new generation facilities and projects in a timely and cost effective manner;

- Cyber terrorism and cybersecurity risks, data breaches or the occurrence of a catastrophic loss and the possibility that NRG may not have sufficient insurance to cover losses resulting from such hazards or the inability of NRG's insurers to provide coverage;
- Operational and reputational risks related to the use of artificial intelligence ("AI") and the adherence to developing laws and regulations related to the use of AI;
- Counterparties' collateral demands and other factors affecting NRG's liquidity position and financial condition;
- NRG's ability to operate its businesses efficiently and generate earnings and cash flows from its asset-based businesses in relation to its debt and other obligations;
- The liquidity and competitiveness of wholesale markets for energy commodities;
- Changes in law, including judicial and regulatory decisions;
- Government regulation, including changes in market rules, rates, tariffs and environmental laws;
- NRG's ability to develop and innovate new products, as retail and wholesale markets continue to change and evolve;
- Price mitigation strategies and other market structures employed by Independent System Operators or Regional Transmission Organizations that result in a failure to adequately and fairly compensate NRG's generation units;
- NRG's ability to borrow funds and access capital markets, as well as NRG's substantial indebtedness and the possibility that NRG may incur additional indebtedness in the future;
- Operating and financial restrictions placed on NRG and its subsidiaries that are contained in NRG's corporate credit agreements, and in debt and other agreements of certain of NRG subsidiaries and project affiliates generally;
- NRG's ability to implement its strategy of finding ways to meet the challenges of climate change, clean air and protecting natural resources, while taking advantage of business opportunities;
- NRG's ability to increase cash from operations through operational and market initiatives, corporate efficiencies, asset strategy, and a range of other programs throughout NRG to reduce costs or generate revenues;
- NRG's ability to successfully evaluate investments and achieve intended financial results in new business and growth initiatives; and
- NRG's ability to develop and maintain successful partnering relationships as needed.

In addition, unlisted factors may present significant additional obstacles to the realization of forward-looking statements. Forward-looking statements speak only as of the date they were made and NRG undertakes no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise except as otherwise required by applicable laws. The foregoing factors that could cause NRG's actual results to differ materially from those contemplated in any forward-looking statements included in this prospectus should not be construed as exhaustive.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly, and current reports, proxy statements, and other information with the SEC. Our SEC filings are also available to the public from the SEC's website at <http://www.sec.gov>. Our common stock is listed on the NYSE and NYSE Texas and information about us also is available there.

This prospectus is part of a registration statement that we have filed with the SEC. The SEC allows us to "incorporate by reference" into this prospectus the information we file with it. This means that we can disclose important information to you by referring you to other documents separately filed with the SEC. The information incorporated by reference is considered to be part of this prospectus, unless and until that information is updated and superseded by the information contained in this prospectus or any information incorporated later. We incorporate by reference the documents listed below:

- [Annual Report on Form 10-K for the year ended December 31, 2024](#) (including the sections incorporated by reference therein from our [definitive proxy statement on Schedule 14A filed with the SEC on March 19, 2025](#)).
- Quarterly Reports on Form 10-Q for the quarters ended [March 31, 2025](#), [June 30, 2025](#) and [September 30, 2025](#).
- Current Reports on Form 8-K filed with the SEC on [April 7, 2025](#), [May 1, 2025](#), [May 16, 2025](#), [July 25, 2025](#), [October 1, 2025](#), [October 8, 2025](#), [January 2, 2026](#), [January 7, 2026](#), [January 30, 2026](#) (as amended by Form 8-K/A dated February 2, 2026).

We also incorporate by reference in this prospectus any future filings that we may make with the SEC under Sections 13 (a), 13(c), 14, or 15(d) of the Exchange Act, prior to the termination of any offering of securities made by this prospectus. However, we are not incorporating by reference any information furnished under Items 2.02 or 7.01 (or corresponding information furnished under Item 9.01 or included as an exhibit) of any Current Report on Form 8-K.

Our filings with the SEC, including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, are available free of charge on our website as soon as reasonably practicable after they are filed with, or furnished to, the SEC. Our internet website is located at <http://www.nrg.com>. The contents of the website are not incorporated by reference into this prospectus. You may also obtain a copy of these filings, at no cost, by writing to or telephoning us at the following address:

NRG Energy, Inc.
804 Carnegie Center
Princeton, NJ 08540
(609) 524-4500
Attention: Corporate Secretary

RISK FACTORS

Your investment in the securities involves certain risks. In consultation with your own financial and legal advisers, you should carefully consider whether an investment in the securities is suitable for you. The securities are not an appropriate investment for you if you do not understand the terms of the securities or financial matters generally. In addition, certain factors that may adversely affect the business of NRG are discussed in our periodic reports referred to in “Where You Can Find More Information” above. For example, our [Annual Report on Form 10-K for the year ended December 31, 2024](#) and our quarterly reports on Form 10-Q for the quarterly periods ended [March 31, 2025](#), [June 30, 2025](#) and [September 30, 2025](#) contain discussions of significant risks that could be relevant to an investment in the securities. You should carefully review these risks and the risks described in the other documents and reports that we file with the SEC after the date of this prospectus that are incorporated by reference into this prospectus or that may be included in any applicable prospectus supplement, before making a decision to invest in our securities. The occurrence of any of these risks might cause you to lose all or part of your investment in the securities. You should not purchase the securities described in this prospectus unless you understand and know you can bear all of the investment risks involved.

THE COMPANY

NRG Energy, Inc. serves electricity, natural gas, and smart-home technology solutions to approximately 8 million residential customers (comprised of 6 million retail energy and 2 million smart home), in addition to large commercial and industrial, hyperscaler, and wholesale customers. Across North America, we are redefining customers' experience with energy under brand names such as NRG, Reliant, Direct Energy, Green Mountain Energy, and Vivint.

Our principal executive office is located at 1301 McKinney Street, Houston, Texas, 77010 and our telephone number is (713) 537-3000.

To find more information about us, please see the section entitled "Where You Can Find More Information."

USE OF PROCEEDS

We will not receive any proceeds from the sale of the securities to be offered by any of the Selling Stockholders pursuant to this prospectus and any applicable prospectus supplement. All common stock offered by this prospectus are being registered for the account of the Selling Stockholders.

DESCRIPTION OF COMMON STOCK

The following description of NRG's common stock is a summary and does not purport to be complete. It is subject to and qualified in its entirety by reference to NRG's Amended and Restated Certificate of Incorporation, as amended (the "Certificate of Incorporation"), and NRG's Sixth Amended and Restated By-laws (the "By-laws"), each of which has been publicly filed with the SEC. See the section of this prospectus entitled "Where You Can Find More Information." For additional information, please read the Certificate of Incorporation, By-laws and the applicable provisions of the Delaware General Corporation Law (the "DGCL").

Authorized Capital Stock

NRG's Certificate of Incorporation provides that the total number of shares of capital stock that may be issued by NRG is 510,000,000, consisting of 500,000,000 shares of common stock, par value \$0.01 per share, and 10,000,000 shares of preferred stock, par value \$0.01 per share.

NRG's preferred stock may be issued from time to time and in one or more series. By resolution adopted by the affirmative vote of at least a majority of the total number of directors then in office, the Board of Directors (the "Board") of NRG is authorized to determine or alter the powers, preferences and rights, and the qualifications, limitations and restrictions granted to or imposed upon any wholly unissued series of preferred stock. As of December 31, 2025, 650,000 shares of preferred stock has been designated as "10.25% Series A Fixed-Rate Reset Cumulative Redeemable Perpetual Preferred Stock" pursuant to that Certificate of Designation filed with the Secretary of State of Delaware on March 9, 2023, as the same may be amended or restated from time to time and the terms of which are incorporated by reference into our Certificate of Incorporation. See the section of this prospectus entitled "Where You Can Find More Information."

Description of NRG Common Stock

Voting Rights

The holders of NRG's common stock are entitled to one vote on each matter submitted for their vote at any meeting of NRG stockholders for each share of common stock held as of the record date for the meeting. Except as otherwise provided by the DGCL or the Certificate of Incorporation and subject to the rights of holders of any series of preferred stock, all of the voting power of the stockholders of NRG is vested in the holders of the common stock. Generally, the vote of the holders of a majority of the total number of votes of NRG capital stock represented at a meeting and entitled to vote on a matter is required in order to approve such matter.

Liquidation Rights

In the event that NRG is liquidated, dissolved or wound up, the holders of NRG common stock will be entitled to a pro rata share in any distribution to stockholders, but only after satisfaction of all of NRG's liabilities and of the prior rights of any outstanding series of NRG's preferred stock.

Dividends

Subject to preferences that may be applicable to any outstanding preferred stock, the holders of NRG common stock are entitled to dividends when, as and if declared by the Board out of funds legally available for that purpose.

No Preemptive Rights

The common stock has no preemptive rights or other subscription rights.

No Redemption Rights, Conversion Rights or Sinking Fund

There are no redemption, conversion or sinking fund provisions applicable to the common stock.

Transfer Agent and Registrar

The transfer agent and registrar for the common stock is Computershare.

Stock Market Listing

The common stock is listed on the New York Stock Exchange and on NYSE Texas under the symbol “NRG.”

Anti-takeover Provisions

Some provisions of the DGCL and NRG’s Certificate of Incorporation and By-laws could discourage or make more difficult a change in control of NRG without the support of the Board. A summary of these provisions follows.

Meetings of Stockholders and Director Vacancies

Special Meetings of Stockholders. NRG’s Certificate of Incorporation provides that a special meeting of stockholders may be called only by the Board by a resolution adopted by the affirmative vote of a majority of the total number of directors then in office or the chief executive officer of NRG (or, if there is no chief executive officer, by the most senior executive officer of NRG).

Elimination of Stockholder Action by Written Consent. NRG’s Certificate of Incorporation and By-laws provide that holders of NRG common stock cannot act by written consent in lieu of a meeting.

Vacancies. Any vacancy occurring on the Board and any newly created directorship may be filled only by a majority of the directors remaining in office (even if less than a quorum), subject to the rights of holders of any series of preferred stock.

Amendments

Amendment of By-laws. The Board has the power to make, alter, amend, change or repeal NRG’s By-laws or adopt new By-laws by the affirmative vote of a majority of the total number of directors then in office, subject to further action by stockholders. This right is subject to repeal or change by the affirmative vote of a majority of the combined voting power of the then outstanding capital stock of NRG entitled to vote on any amendment or repeal of the By-laws.

Notice Provisions Relating to Stockholder Proposals and Nominees

NRG’s By-laws also impose some procedural requirements on stockholders who wish to make nominations in the election of directors or propose any other business to be brought before an annual or special meeting of stockholders.

Specifically, a stockholder may (i) bring a proposal before an annual meeting of stockholders, (ii) nominate a candidate for election to the Board at an annual meeting of stockholders, or (iii) nominate a candidate for election to the Board at a special meeting of stockholders that has been called for the purpose of electing directors, only if such stockholder delivers timely notice to NRG’s corporate secretary. The notice must be in writing and must include certain information and comply with the delivery requirements as set forth in the bylaws.

To be timely, a stockholder’s notice must be received at the principal executive offices of NRG:

- (1) in the case of a nomination (other than nominations made pursuant to Section 15 of Article II of the By-laws) or other business in connection with an annual meeting of stockholders, not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the previous year’s annual meeting of stockholders; provided, however, that if the date of the annual meeting is advanced more than 30 days before or delayed more than 70 days after the first anniversary of the preceding year’s annual meeting, notice by the stockholder must be delivered not earlier than the close of business on the 120th day prior to such annual meeting and not later than the close of business on the later of the 90th day prior to such

annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made by NRG; or

- (2) in the case of a nomination in connection with a special meeting of stockholders, not earlier than the 120th day prior to such special meeting and not later than the close of business on the later of the 90th day before such special meeting or the 10th day following the day on which public announcement of the date of such meeting is first made by NRG.
- (3) For nominations made pursuant to Section 15 of Article II of the By-laws, namely nominating a stockholder nominee, the nominating stockholder must, no earlier than 150 calendar days and no later than 120 calendar days before the first anniversary of the date of NRG's proxy materials released to stockholders in connection with the previous year's annual meeting of stockholders, submit to the secretary of NRG at the principal executive office of NRG all of the information and documents required in the By-laws (collectively, the "Nomination Notice"); provided, however, that if (and only if) the annual meeting is not scheduled to be held within a period that commences 30 days before the anniversary date of the prior year's annual meeting and ends 30 days after such anniversary date (an annual meeting date outside such period being referred to herein as an "Other Meeting Date"), the Nomination Notice shall be given in the manner provided herein by the later of the close of business on the date that is 150 days prior to such Other Meeting Date or the tenth day following the date such Other Meeting Date is first publicly announced or disclosed.

With respect to (1) and (2) above, stockholders are also required to further update and supplement such notices of nomination so that the information provided (or required to be provided) in such notice pursuant to the Certificate of Incorporation is true and correct,

Delaware Anti-takeover Law

NRG is subject to Section 203 of the DGCL. Section 203 provides that, subject to certain exceptions specified in the law, a Delaware corporation shall not engage in certain "business combinations" with any "interested stockholder" for a three-year period following the time that the stockholder became an interested stockholder unless:

- prior to such time, the Board approved either the business combination or the transaction that resulted in the stockholder becoming an interested stockholder;
- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock outstanding at the time the transaction commenced, excluding certain shares; or
- at or subsequent to that time, the business combination is approved by the Board and by the affirmative vote of holders of at least 66 $\frac{2}{3}$ % of the outstanding voting stock that is not owned by the interested stockholder.

Generally, a "business combination" includes a merger, asset or stock sale or other transaction resulting in a financial benefit to the interested stockholder. Subject to certain exceptions, an "interested stockholder" is a person who, together with that person's affiliates and associates, owns, or within the previous three years did own, 15% or more of NRG's voting stock.

Under certain circumstances, Section 203 makes it more difficult for a person who would be an "interested stockholder" to effect various business combinations with a corporation for a three-year period. The provisions of Section 203 may encourage companies interested in acquiring NRG to negotiate in advance with the Board because the stockholder approval requirement would be avoided if the NRG Board approves either the business combination or the transaction that results in the stockholder becoming an interested stockholder. These provisions also may make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

SELLING STOCKHOLDERS

We are registering for resale from time to time by the Selling Stockholders identified in the table below, including their transferees, pledgees, donees, assignees or other successors-in-interest who later come to hold any of the common stock as a result of a transfer not involving a public sale, up to 24,250,000 shares of our common stock held by them. The Selling Stockholders may also sell, transfer or otherwise dispose of all or a portion of its shares in transactions exempt from the registration requirements of the Securities Act or pursuant to another effective registration statement covering those shares.

Registration Rights Agreement

We are registering the offer and sale of the shares beneficially owned by the Selling Stockholders to satisfy certain registration obligations in connection with the Acquisition. At the closing of the Acquisition, on January 30, 2026, the Selling Stockholders entered into a registration rights agreement, pursuant to which we agreed, on the terms and conditions set forth therein, to file with the SEC a registration statement registering for resale the shares of our common stock comprising the stock consideration of the Acquisition. Furthermore, under the Registration Rights Agreement, the Selling Stockholders have piggyback registration rights with respect to certain other underwritten offerings conducted by us and demand rights with respect to underwritten offerings under this registration statement. The Registration Rights Agreement contains customary indemnification and contribution obligations of ours for the benefit of the Selling Stockholders and vice versa, subject to certain qualifications and exceptions. See the section of this prospectus entitled “Where You Can Find More Information.” We will not receive any proceeds from the resale of the common stock by the Selling Stockholders.

Voting Trust Agreement

At the closing of the Acquisition, on January 30, 2026, each Selling Stockholder also entered into an Amended and Restated Voting Trust Agreement (the “Voting Trust Agreement”) with Wilmington Savings Fund Society, FSB (the “Trustee”) to limit certain voting rights of the Selling Stockholders with respect to their common stock to an aggregate level below ten percent (10%) of the total outstanding common stock in order to address certain requirements under the Federal Energy Regulation Commission’s rules and regulations and related order approving the Acquisition. Under the Voting Trust Agreement, at closing, the Selling Stockholders deposited 3,300,000 shares of common stock in the Trust and granted to the Trustee, subject to certain exceptions, voting rights with respect to the shares held in trust. Under the terms of the Voting Trust Agreement, the Trustee is obligated to vote or cause to be voted the common stock in accordance with the written recommendations of (i) the board of directors of NRG or a duly organized committee thereof; or (ii) in the absence of a recommendation of the board of directors of NRG or a duly organized committee thereof, in accordance with the terms set forth in the Voting Trust Agreement. Under the terms of the Voting Trust Agreement, the Selling Stockholders (or certain of their affiliates) may withdraw common stock from time to time from the Trust or deposit additional shares of common stock with the Trust, subject to the terms and conditions set forth in the Voting Trust Agreement. The Selling Stockholders retain all economic interest in the common stock held in the Trust, including the right to receive dividends and any distributions in kind with respect.

Selling Stockholders

Information about the Selling Stockholders may change over time. As used in this prospectus, “Selling Stockholders” includes the donees, transferees, assignees, successors, heirs, executors, administrators, legal representatives, pledgees and others who may later hold the Selling Stockholders’ interests.

The following table sets forth certain information known to us with respect to the beneficial ownership of our common stock. We cannot advise you as to whether the Selling Stockholders will in fact sell any or all of such securities. We currently have no agreements, arrangements or understandings with the Selling Stockholders regarding the sale or other disposition of any of the shares of our common stock. In particular, the Selling Stockholders identified below may have sold, transferred or otherwise disposed of all or a portion of their securities after the date on which they provided us with information regarding their securities. Any changed or new information given to us by the Selling Stockholders, including regarding the identity

of, and the securities held by, each Selling Stockholder, will be set forth in a prospectus supplement or amendments to the registration statement of which this prospectus is a part, if and when necessary.

All of the 24,250,000 shares issued in connection with the Acquisition to the Selling Stockholders are subject to a lock-up period beginning on the Acquisition closing date and ending on the date that is six months after the Acquisition closing date (July 30, 2026). During the lock-up period, the Selling Stockholders may not transfer their shares, subject to certain exceptions set forth in the Registration Rights Agreement. To our knowledge, none of the Selling Stockholders listed in the table below has, or during the three years prior to the date of this prospectus has had, any position, office, or other material relationships with us or any of our affiliates other than the Acquisition and transactions related to the Acquisition.

The information set forth in the table below is based upon information obtained from the Selling Stockholders. Beneficial ownership of the Selling Stockholders is determined in accordance with the applicable rules and regulations of the SEC, and the information is not necessarily indicative of beneficial ownership for any other purpose. The percentage of shares beneficially owned prior to, and after, the offering is based on 214,677,543 shares of common stock outstanding as of January 30, 2026, and includes the issuance of 24,250,000 shares of common stock upon the closing of the Acquisition on January 30, 2026. Solely for purposes of the table below, we have assumed that such Selling Stockholders will sell all of the common stock held by them and will make no other purchases or sales of common stock.

Name of Beneficial Owner	Common Stock Beneficially Owned		Common Stock that May be Offered for Resale	Common Stock Beneficially Owned After the Sale of the Maximum Number of Common Stock That May be Offered for Resale	
	Number of Shares	Percent of Common Stock Outstanding		Number of Shares	Percent of Common Stock Outstanding
Lightning Power Holdings, LLC ⁽¹⁾⁽²⁾	19,025,277	8.86%	19,025,277	—	—
Thunder Generation, LLC ⁽³⁾⁽⁴⁾	4,020,678	1.87%	4,020,678	—	—
CCS Power Holdings, LLC ⁽⁵⁾⁽⁶⁾	1,204,045	*	1,204,045	—	—

* Denotes less than 1%.

- (1) Represents 19,025,277 shares of common stock held by Lightning Power Holdings, LLC. Of these, 16,436,270 shares of common stock are held directly by Lightning Power Holdings, LLC and 2,589,007 shares of common stock are held indirectly through the Project Hurricane Consideration Voting Trust 2026 (the "Trust"), which was formed in connection with the Acquisition. Please see the section of this Registration Statement titled "Selling Stockholders — Voting Trust Agreement" for additional information with respect to the Trust.
- (2) The majority unitholder of Lightning Power Holdings, LLC is Fund III Lightning Holdings, LLC, a Delaware limited liability company. Fund III Lightning Holdings, LLC owns 68% of the outstanding Class A Units of Lightning Power Holdings, LLC. The majority unitholder of Fund III Lightning Holdings, LLC is Granite Energy, LLC, a Delaware limited liability company. Granite Energy, LLC owns 50% of the outstanding Class A Units of Fund III Lightning Holdings, LLC. The sole member of Granite Energy, LLC is Granite Energy Holdings, LLC, a Delaware limited liability company. The sole member of Granite Energy Holdings, LLC is LS Power Equity Partners III, L.P. ("LSPEP III"), a Delaware limited partnership. The general partner of LSPEP III GP is LS Power Fund III G.P., LLC ("LSPEP III Ultimate GP"), a Delaware limited liability company. The investment manager of LSPEP III is LS Power Equity Advisors, LLC ("LSP Advisors"), a Delaware limited liability company and SEC-registered investment adviser. David Nanus ("Mr. Nanus") is the President of LSP Advisors. The address of the principal business and principal office of each of the above entities is 250 West 55th Street, 31st Floor, New York, NY 10019. Each of Lightning Power Holdings, LLC, Fund III Lightning Holdings, LLC, Granite Energy, LLC, Granite Energy Holdings, LLC, LSPEP III, LSPEP III GP, LSPEP III Ultimate GP, LSP Advisors (together, the "LS Power Lightning Entities"), and Mr. Nanus may be deemed to have shared voting and investment power with respect to the shares directly owned by

- Lightning Power Holdings, LLC and therefore may be deemed to beneficially own such shares. Mr. Nanus disclaims beneficial ownership of such shares.
- (3) Represents 4,020,678 shares of common stock held by Thunder Generation, LLC. Of these, 3,473,534 shares of common stock are held directly by Thunder Generation, LLC and 547,144 shares of common stock are held indirectly through the Trust. Please see the section of this Registration Statement titled “Selling Stockholders — Voting Trust Agreement” for additional information with respect to the Trust.
- (4) The sole member of Thunder Generation is Thunder Generation Funding, LLC, a Delaware limited liability company. The sole member of Thunder Generation Funding, LLC is Thunder Generation Holdings, LLC, a Delaware limited liability company. The sole member of Thunder Generation Holdings, LLC is LS Power Equity Partners IV, L.P. (“LSPEP IV”), a Delaware limited partnership. The general partner of LSPEP IV is LS Power Partners IV, L.P. (“LSPEP IV GP”), a Delaware limited partnership. The general partner of LSPEP IV GP is LS Power Fund IV G.P., LLC (“LSPEP IV Ultimate GP”), a Delaware limited liability company. The investment manager of LSPEP IV is LS Power Equity Advisors, LLC (“LSP Advisors”), a Delaware limited liability company and SEC-registered investment adviser. David Nanus (“Mr. Nanus”) is the President of LSP Advisors. The address of the principal business and principal office of each of the above entities is 250 West 55th Street, 31st Floor, New York, NY 10019. Each of Thunder Generation, LLC, Thunder Generation Funding, LLC, Thunder Generation Holdings, LLC, LSPEP IV, LSPEP IV GP, LSPEP IV Ultimate GP, LSP Advisors (together, the “LS Power Thunder Entities”), and Mr. Nanus may be deemed to have shared voting and investment power with respect to the shares directly owned by Thunder Generation, LLC and therefore may be deemed to beneficially own such shares. Mr. Nanus disclaims beneficial ownership of such shares.
- (5) Represents 1,204,045 shares of common stock held by CCS Power Holdings, LLC. Of these, 1,040,196 shares of common stock are held directly by CCS Power Holdings, LLC and 163,849 shares of common stock are held indirectly through the Trust. Please see the section of this Registration Statement titled “Selling Stockholders — Voting Trust Agreement” for additional information with respect to the Trust.
- (6) The sole Class A Unitholder and voting member is CCS Class A Member, LLC, a Delaware limited liability company. The sole member of CCS Class A Member, LLC is LS Power Equity Partners IV, L.P. (“LSPEP IV”), a Delaware limited partnership. The general partner of LSPEP IV is LS Power Partners IV, L.P. (“LSPEP IV GP”), a Delaware limited partnership. The general partner of LSPEP IV GP is LS Power Fund IV G.P., LLC (“LSPEP IV Ultimate GP”), a Delaware limited liability company. The investment manager of LSPEP IV is LS Power Equity Advisors, LLC (“LSP Advisors”), a Delaware limited liability company and SEC-registered investment adviser. David Nanus (“Mr. Nanus”) is the President of LSP Advisors. The address of the principal business and principal office of each of the above entities is 250 West 55th Street, 31st Floor, New York, NY 10019. Each of CCS Class A Member, LLC, LSPEP IV, LSPEP IV GP, LSPEP IV Ultimate GP, LSP Advisors (together, the “LS Power CCS Entities”), and Mr. Nanus may be deemed to have shared voting and investment power with respect to the shares directly owned by CCS Power Holdings, LLC and therefore may be deemed to beneficially own such shares. Mr. Nanus disclaims beneficial ownership of such shares.

PLAN OF DISTRIBUTION

The offered shares of common stock are being registered to permit the Selling Stockholders, including their donees, transferees, assignees, pledgees, successors and others who later come to hold any of the common stock as a result of a transfer not involving a public sale, to offer and sell up to 24,250,000 shares of our common stock held by them from time to time after the date of this prospectus. These dispositions may be at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to such prevailing market prices; or
- negotiated prices.

We will not receive any proceeds from the sale of the common stock to be offered by any of the Selling Stockholders pursuant to this prospectus and any applicable prospectus supplement. Under the terms of the Registration Rights Agreement, we will bear all the costs, fees and expenses incurred in effecting the registration of the securities covered by this prospectus, including all registration and filing fees and fees and expenses of our counsel and accountants, including up to \$250,000 of legal fees incurred by the Selling Stockholders. Any Selling Stockholders will pay any underwriting discounts and commissions, and transfer taxes, if any, relating to the sale of such Selling Stockholder's common stock.

The Selling Stockholders may use any one or more of the following methods when disposing of their common stock or interests therein:

- on the NYSE or any other national securities exchange or U.S. inter-dealer system of a registered national securities association on which the common stock may be listed or quoted at the time of sale;
- an over-the-counter sale or distribution;
- ordinary brokerage transactions and transactions in which a broker solicits purchasers;
- one or more underwritten offerings;
- block trades in which a broker-dealer will attempt to sell the shares as agent, but may position and resell a portion of the block as principal to facilitate the transaction, or in crosses in which the same broker acts as an agent on both sides;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution and/or secondary distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- short sales, whether through a broker-dealer or by themselves;
- through distributions by any Selling Stockholder to its general or limited partners, members, managers affiliates, employees, directors or stockholders;
- in options transactions;
- directly to one or more purchasers;
- through agents;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise; and
- in any combination of the above or by any other legally available means available to and requested by the Selling Stockholders.

The Selling Stockholders may also sell the common stock covered by this registration statement in an "at the market offering" as defined in Rule 415 under the Securities Act. Such offering may be made into an existing trading market for the common stock in transactions at other than a fixed price, either:

- on or through the facilities of the NYSE or any other securities exchange or quotation or trading service on which such securities may be listed, quoted or traded at the time of sale; and/or
- to or through a market maker otherwise than on the NYSE or such other securities exchanges or quotation or trading services.

Any at-the-market offerings may be conducted by underwriters acting as principal or agent.

The Selling Stockholders may solicit directly offers to purchase the common stock, and one or more Selling Stockholders may sell the common stock directly to purchasers without the involvement of agents, underwriters or dealers. The Selling Stockholders also may resell shares of the common stock in open market transactions in reliance upon Rule 144 under the Securities Act, provided that the sales of the shares meet the criteria and conform to the requirements of Rule 144, or pursuant to other available exemptions from the registration requirements of the Securities Act.

Each of the Selling Stockholders may, from time to time, loan, pledge or grant a security interest in some of the common stock owned by it and, if such Selling Stockholder defaults in the performance of its secured obligations, the pledgees or secured parties may offer and sell the shares, from time to time, under this prospectus, or under an amendment or supplement to this prospectus amending the list of the Selling Stockholders to include the pledgees, transferees or other successors-in-interest as Selling Stockholders under this prospectus. The Selling Stockholders may also enter into derivative and hedging transactions with broker-dealers, other financial institutions or third parties involving the common stock. Any derivative or hedging counter-party may in turn engage in short sales of common stock or lend securities in order to facilitate short sale transactions by others in the course of hedging the positions they assume. The Selling Stockholders may also sell common stock short and deliver these securities to close out their short positions, or loan or pledge common stock to broker-dealers, financial institutions or other third parties that in turn may sell these securities. The Selling Stockholders may also enter into forward sale, option or other transactions with broker-dealers or other financial institutions or one or more derivative securities that require the delivery to such broker-dealer or other financial institution of the common stock, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus. The Selling Stockholders also may transfer the common stock in other circumstances, in which case the transferees, pledgees or other successors-in-interest will be the selling beneficial owners for purposes of this prospectus.

The Selling Stockholders may engage underwriters, brokers or dealers in connection with the sale of any common stock, and any underwriters, brokers or dealers may arrange for other underwriters, brokers or dealers to participate in effecting sales of the common stock. These underwriters, brokers or dealers may act as principals, or as an agent of a Selling Stockholder. Broker-dealers may agree with a Selling Stockholder to sell a specified number of shares of the common stock at a stipulated price per share. If the broker-dealer is unable to sell the common stock acting as agent for a Selling Stockholder, it may purchase as principal any unsold common stock at the stipulated price. Broker-dealers who acquire common stock as principals may thereafter resell the shares from time to time in transactions in any stock exchange or automated interdealer quotation system on which the common stock is then listed or in over-the-counter market, at prices and on terms then prevailing at the time of sale, at prices related to the then-current market price or in negotiated transactions. Broker-dealers may use block transactions and sales to and through broker-dealers, including transactions of the nature described above.

If the common stock is offered pursuant to an underwritten offering, the underwriters will acquire the shares for their own account and may resell the shares from time to time in one or more transactions at a fixed public offering price or at varying prices determined at the time of sale. The obligations of the underwriters to purchase any common stock will be subject to the conditions set forth in the applicable underwriting agreement that the Selling Stockholders will enter into with the underwriters. The Selling Stockholders may offer the common stock to the public through underwriting syndicates represented by managing underwriters or by underwriters without a syndicate. Subject to certain conditions, the underwriters will be obligated to purchase all of the common stock offered by the prospectus supplement, other than any shares covered by any over-allotment option.

To the extent required under the Securities Act, the aggregate amount of Selling Stockholders' common stock being offered and the terms of the offering, the names of any agents, brokers, dealers or

underwriters and any applicable commission with respect to a particular offer will be set forth in a prospectus supplement. The prospectus supplement (and any related free writing prospectus) will describe the applicable terms of the offering of the securities, including:

- the name or names of the underwriters, if any;
- the purchase price of the common stock and the proceeds, if any, the Selling Stockholders will receive from the sale;
- any over-allotment options under which underwriters may purchase additional common stock from the Selling Stockholders;
- any agency fees or underwriting discounts or commissions and other items constituting agents' or underwriters' compensation;
- any public offering price;
- any discounts, commissions or concessions allowed or reallocated or paid to dealers;
- any securities exchange or market on which the common stock may be listed; and
- the nature of any material relationships that the Selling Stockholders may have with any underwriter.

The Selling Stockholders and any underwriters, broker-dealers or agents that participate in the sale of common stock or interests therein may be "underwriters" within the meaning of Section 2(a)(11) of the Securities Act. Any discounts, commissions, concessions or profit they earn on any resale of the common stock may constitute underwriting discounts and commissions under the Securities Act. If any Selling Stockholder is an "underwriter" within the meaning of Section 2(a)(11) of the Securities Act, then such Selling Stockholder will be subject to the prospectus delivery requirements of the Securities Act.

To facilitate the offering of the common stock by the Selling Stockholders, an underwriter or other person participating in the offer may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. This may include over-allotments, stabilizing transactions, short-covering transactions and penalty bids in accordance with Regulation M under the Exchange Act. Over-allotment involves sales in excess of the offering size, which create a short position. Stabilizing transactions permit bids to purchase the underlying security so long as the stabilizing bids do not exceed a specified maximum price. Syndicate-covering or other short-covering transactions involve purchases of the common stock, either through exercise of the over-allotment option or in the open market after the distribution is completed, to cover short positions. Penalty bids permit the underwriters to reclaim a selling concession from a dealer when the securities originally sold by the dealer are purchased in a stabilizing or covering transaction to cover short positions. Those activities may cause the price of the common stock to be higher than it would otherwise be. If commenced, the underwriters may discontinue any of the activities at any time.

Any underwriters or agents that are qualified market makers on the NYSE may engage in passive market making transactions in the common stock on the NYSE in accordance with Regulation M under the Exchange Act, during the business day prior to the pricing of the offering, before the commencement of offers or sales of the common stock. Passive market makers must comply with applicable volume and price limitations and must be identified as passive market makers. In general, a passive market maker must display its bid at a price not in excess of the highest independent bid for such security; if all independent bids are lowered below the passive market maker's bid, however, the passive market maker's bid must then be lowered when certain purchase limits are exceeded. Passive market making may stabilize the market price of the securities at a level above that which might otherwise prevail in the open market and, if commenced, may be discontinued at any time.

Underwriters and their controlling persons, dealers and agents engaged by the Selling Stockholders may be entitled, under agreements entered into by such underwriters, controlling persons, dealers or agents and the Selling Stockholders, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act. We or the Selling Stockholders may provide agents and underwriters with indemnification against civil liabilities, including liabilities under the Securities Act, or contribution with respect to payments that the agents or underwriters may make with respect to these liabilities. In addition, we will indemnify the Selling Stockholders against certain civil liabilities, including

certain liabilities under the Securities Act, and the Selling Stockholders will be entitled to contribution from us with respect to those liabilities. The Selling Stockholders will indemnify us against certain civil liabilities under the Securities Act, and we will be entitled to contribution from the Selling Stockholders with respect to those liabilities. Agents and underwriters may engage in transactions with, or perform services for, us or the Selling Stockholders in the ordinary course of business.

LEGAL OPINIONS

Unless otherwise specified in the applicable prospectus supplement, the validity and enforceability of the offered securities will be passed upon for us by White & Case LLP. Legal counsel to any underwriters may pass upon legal matters for such underwriters. Additional legal matters may be passed upon for us, any Selling Stockholders or any underwriters, dealers or agents, by counsel that we will name in the applicable prospectus supplement.

EXPERTS

The consolidated financial statements of NRG Energy, Inc. as of December 31, 2024 and 2023, and for each of the years in the three-year period ended December 31, 2024, and management's assessment of the effectiveness of internal control over financial reporting as of December 31, 2024, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent registered public accounting firm, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of Lightning Power, LLC as of December 31, 2024 and for the period August 9, 2024 to December 31, 2024, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent auditors, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The combined financial statements of Fund III Projects as of August 8, 2024 and December 31, 2023 and for the period January 1, 2024 to August 8, 2024 and the year ended December 31, 2023, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent auditors, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of Gridiron Intermediate Holdings, LLC as of August 8, 2024 and December 31, 2023 and for the period January 1, 2024 to August 8, 2024 and the year ended December 31, 2023, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent auditors, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of Linebacker Power Funding, LLC as of December 31, 2024 and 2023 and for the year ended December 31, 2024 and the period June 12, 2023 to December 31, 2023, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent auditors, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

The consolidated financial statements of CCS Power Finance Co, LLC as of and for the years ended December 31, 2024 and 2023, have been incorporated by reference herein in reliance upon the reports of KPMG LLP, independent auditors, incorporated by reference herein, and upon the authority of said firm as experts in accounting and auditing.

PART II. INFORMATION NOT REQUIRED IN THE PROSPECTUS

Item 14. Other Expense of Issuance and Distribution

The following table sets forth all expenses (not including underwriting discounts and commissions) in connection with the issuance and distribution of the securities being registered. All amounts are estimates other than the registration fee payable to the SEC.

Filing fee for Registration Statement	\$	(1)
Legal Fees and Expenses		(2)
Rating Agency Fees		(2)
Blue Sky Fees and Expenses		(2)
Printing and Engraving Fees		(2)
Accounting Fees and Expenses		(2)
Miscellaneous Expenses		(2)
Total	\$	(2)

(1) Deferred in accordance with Rules 456(b) and 457(r) of the Securities Act of 1933.

(2) These fees and expenses are calculated based on the securities offered and the number of issuances and accordingly are not known at the time of filing this registration statement.

Item 15. Indemnification of Directors and Officers

Subsection (a) of Section 145 of the General Corporation Law of the State of Delaware (the "DGCL") empowers a corporation to indemnify any person who was or is a party or who is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that the person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe the person's conduct was unlawful.

Subsection (b) of Section 145 empowers a corporation to indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that the person acted in any of the capacities set forth above, against expenses (including attorneys' fees) actually and reasonably incurred by the person in connection with the defense or settlement of such action or suit if the person acted in good faith and in a manner the person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification shall be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery or the court in which such action or suit was brought shall determine upon application that, despite the adjudication of liability but in view of all the circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses which the Court of Chancery or such other court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful on the merits or otherwise in the defense of any action, suit or proceeding referred to in subsections (a) and (b) of Section 145, or in defense of any claim, issue or matter therein, such person shall be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection therewith; that indemnification provided for by Section 145 shall not be deemed exclusive of any other rights to which the indemnified party may be entitled; and the indemnification provided for by Section 145 shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a director,

officer, employee or agent and shall inure to the benefit of such person's heirs, executors and administrators. Section 145 also empowers the corporation to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against such person and incurred by such person in any such capacity, or arising out of his status as such, whether or not the corporation would have the power to indemnify such person against such liabilities under Section 145.

Section 102(b)(7) of the DGCL provides that a corporation's certificate of incorporation may contain a provision eliminating or limiting the personal liability of a director to the corporation or its stockholders or monetary damages for breach of fiduciary duty as a director, provided that such provision shall not eliminate or limit the liability of a director (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the DGCL, or (iv) for any transaction from which the director derived an improper personal benefit.

The Amended and Restated Certificate of Incorporation of the Registrant, as amended, provides, to the fullest extent permitted by the DGCL and except as otherwise provided in its by-laws, no director of the Registrant shall be liable to it or its stockholders for monetary damages for breach of fiduciary duty owed to the Registrant or its stockholders and the Registrant shall indemnify its officers and directors. Furthermore, the Sixth Amended and Restated By-laws of the Registrant provide that each person who was or is made a party to or is threatened to be made a party to or is otherwise involved (including involvement as a witness) in any action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a director, officer or employee of the Registrant or a wholly owned subsidiary of the Registrant or, while a director or officer of the Registrant or a wholly owned subsidiary of the Registrant, is or was serving at the request of the Registrant or a wholly owned subsidiary of the Registrant as a director, officer, employee, partner, member, manager, trustee, fiduciary or agent of another corporation or of a partnership, joint venture, limited liability company, trust or other entity or enterprise, including service with respect to an employee benefit plan (an "indemnitee"), shall be indemnified and held harmless by the Registrant to the fullest extent authorized by the DGCL, against all expense, liability and loss (including attorneys' fees, judgments, fines, excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such indemnitee in connection therewith, and such indemnification shall continue as to an indemnitee who has ceased to be a director, officer, employee, partner, member, manager, trustee, fiduciary or agent and shall inure to the benefit of the indemnitee's heirs, executors and administrators. This right of indemnification includes the Registrant's obligation to provide an advance of expenses, although the indemnitee may be required to repay such an advance if there is a judicial determination that the indemnitee was not entitled to the indemnification.

The Sixth Amended and Restated By-laws of the Registrant also permits the Registrant to purchase and maintain insurance on its own behalf and on behalf of any other person who is or was a director, officer, employee or agent of the Registrant or a subsidiary of the Registrant or was serving at request of the Registrant or a subsidiary of the Registrant. The Registrant has purchased and maintains such insurance.

Item 16. Exhibits

See the index to exhibits that appears immediately preceding the signature pages to this Registration Statement.

Item 17. Undertakings

- (a) The undersigned Registrant hereby undertakes:
 - (1) To file, during any period in which offers or sales are being made, a post-effective amendment to the registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

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

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

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (4) That, for the purpose of determining liability under the Securities Act to any purchaser:
 - (A) Each prospectus filed by a Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and
 - (B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5) or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii) or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is *first* used after effectiveness or the date of the *first* contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which the prospectus relates, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.

Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

- (5) That, for the purpose of determining liability of a registrant under the Securities Act to any purchaser in the initial distribution of the securities, each undersigned registrant undertakes

that in a primary offering of securities of an undersigned registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, an undersigned registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of an undersigned registrant relating to the offering required to be filed pursuant to Rule 424;
 - (ii) Any free writing prospectus relating to the offering prepared by or on behalf of an undersigned registrant or used or referred to by an undersigned registrant;
 - (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned registrant or its securities provided by or on behalf of the undersigned registrant; and
 - (iv) Any other communication that is an offer in the offering made by an undersigned registrant to the purchaser.
- (b) Each of the undersigned Registrants hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of our annual report pursuant to Section 13(a) or Section 15(d) of the Exchange Act (and, where applicable, each filing of any employee benefit plan's annual report pursuant to Section 15(d) of the Exchange Act) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of each Registrant pursuant to the foregoing provisions, or otherwise, each Registrant has been advised that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by a Registrant of expenses incurred or paid by a director, officer or controlling person of a Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, that a Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

EXHIBIT INDEX

Exhibit Number	Exhibit Description
*1	Form of Underwriting Agreement.
3.1	Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed on May 1, 2025).
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation (incorporated herein by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed on December 14, 2012).
3.3	Sixth Amended and Restated By-Laws (incorporated herein by reference to Exhibit 3.2 to the Registrant's current report on Form 8-K filed on December 2, 2022).
3.4	Series A Preferred Stock Certificate of Designation filed with the Secretary of State of Delaware on March 9, 2023 (incorporated herein by reference to Exhibit 3.1 to the Registrant's current report on Form 8-K filed on March 10, 2023).
4.1	Specimen of Certificate representing common stock of NRG Energy, Inc. (incorporated herein by reference to Exhibit 4.3 to the Registrant's quarterly report on Form 10-Q filed on August 4, 2006).
4.2	Registration Rights Agreement dated January 30, 2026 by and among NRG Energy, Inc., Lightning Power Holdings, LLC, Thunder Generation, LLC, CCS Power Holdings, LLC, and Linebacker Power Development Funding, LLC (incorporated herein by reference to Exhibit 4.1 to the Registrant's current report on Form 8-K filed on January 30, 2026).
**5.1	Opinion of White & Case LLP.
**23(a)	Consent of White & Case LLP (included in Exhibit 5.1).
**23(b)	Consent of KPMG LLP, independent registered public accounting firm of NRG Energy, Inc.
**23(c)	Consent of KPMG LLP, independent auditors of Fund III Projects.
**23(d)	Consent of KPMG LLP, independent auditors of Gridiron Intermediate Holdings, LLC.
**23(e)	Consent of KPMG LLP, independent auditors of Lightning Power, LLC.
**23(f)	Consent of KPMG LLP, independent auditors of Linebacker Power Funding, LLC.
**23(g)	Consent of KPMG LLP, independent auditors of CCS Power Finance Co, LLC.
**24	Powers of Attorney (included on signature pages of this registration statement).
**107	Calculation of Filing Fee Table.

* To be filed by amendment or by incorporation by reference in connection with the offering of the securities.

** Filed herewith.

SIGNATURES

Pursuant to the requirements of the Securities Act, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Houston, State of Texas, on February 2, 2026.

NRG ENERGY, INC.

By /s/ Lawrence S. Coben
 Name: Lawrence S. Coben
 Title: Principal Executive Officer

POWER OF ATTORNEY

Each person whose signature appears below constitutes and appoints Brian E. Curci and Christine A. Zoino, each or any of them, such person's true and lawful attorney-in-fact and agent with full power of substitution and resubstitution for such person and in such person's name, place and stead, in any and all capacities, to sign any or all amendments (including post-effective amendments) to this registration statement and filed pursuant to Rule 462 of the Securities Act of 1933, as amended, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing necessary or desirable to be done in and about the premises, as fully to all intents and purposes as such person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them or his or their substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

In accordance with the Exchange Act, this registration statement has been signed by the following persons on behalf of the registrant in the capacities indicated on February 2, 2026.

<u>Signature</u>	<u>Title</u>
<u>/s/ Lawrence S. Coben</u> Lawrence S. Coben	Chief Executive Officer and Director (Principal Executive Officer, Chair of the Board)
<u>/s/ Woo-Sung Chung</u> Woo-Sung Chung	Chief Financial Officer (Principal Financial Officer)
<u>/s/ G. Alfred Spencer</u> G. Alfred Spencer	Chief Accounting Officer (Principal Accounting Officer)
<u>/s/ E. Spencer Abraham</u> E. Spencer Abraham	Director
<u>/s/ Antonio Carrillo</u> Antonio Carrillo	Director
<u>/s/ Matthew Carter, Jr.</u> Matthew Carter, Jr.	Director

<u>Signature</u>	<u>Title</u>
<u>/s/ Heather Cox</u> Heather Cox	Director
<u>/s/ Elisabeth B. Donohue</u> Elisabeth B. Donohue	Director
<u>/s/ Marwan Fawaz</u> Marwan Fawaz	Director
<u>/s/ Alexander Pourbaix</u> Alexander Pourbaix	Director
<u>/s/ Alexandra Pruner</u> Alexandra Pruner	Director
<u>/s/ Marcie Zlotnik</u> Marcie Zlotnik	Director

White & Case LLP
1221 Avenue of the Americas
New York, NY 10020-1095
T +1 212 819 8200

whitecase.com

February 2, 2026

NRG Energy, Inc.
1301 McKinney Street
Houston, Texas 77010

Ladies and Gentlemen:

We have acted as New York counsel to NRG Energy, Inc., a corporation organized under the laws of Delaware (the "Company"), in connection with the preparation and filing by the Company with the Securities and Exchange Commission (the "Commission") of an automatic shelf registration statement on Form S-3ASR (as amended, the "Registration Statement") on the date hereof, including a base prospectus (the "Base Prospectus"), which provides that it may be supplemented by one or more prospectus supplements (each such prospectus supplement, together with the Base Prospectus, a "Prospectus"), relating to the registration under the Securities Act of 1933, as amended (the "Securities Act"), of the resale or distribution, from time to time, by the selling stockholders named in the Registration Statement (the "Selling Stockholders"), of an aggregate of up to 24,250,000 shares (the "Offered Shares") of common stock of the Company, par value \$0.01 per share (the "common stock"). The Offered Shares that are being registered under the Registration Statement will have an indeterminate aggregate initial offering price and will be offered on a continuous or delayed basis pursuant to the provisions of Rule 415 under the Securities Act.

This opinion letter is rendered in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act, and no opinion is expressed herein as to any matter pertaining to the contents of the Registration Statement, the Base Prospectus or any Prospectus filed pursuant to Rule 424(b) with respect thereto, other than as expressly stated herein.

In connection with our opinions expressed below, we have examined originals or copies certified or otherwise identified to our satisfaction of the following documents and such other documents, corporate records, certificates and other statements of government officials and corporate officers of the Company as we deemed necessary for the purposes of the opinions set forth in this opinion letter:

- (a) the Registration Statement;
- (b) the Base Prospectus;
- (c) a copy of the Amended and Restated Certificate of Incorporation of the Company (the "Certificate of Incorporation"), dated May 1, 2025, filed as Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the Commission on May 1, 2025;
- (d) a copy of the Sixth Amended and Restated By-Laws of the Company, amended and restated as of December 1, 2022, filed as Exhibit 3.2 to the Company's Current Report on Form 8-K filed with the Commission on December 2, 2022;
- (e) a copy of the resolutions adopted by the Company's board of directors (the "Board") on May 10, 2025;
- (f) a copy of a certificate, dated the date hereof, of the Delaware Secretary of State, certifying the existence and good standing of the Company under the laws of the State of Delaware; and
- (g) the Specimen of Certificate representing common stock of NRG Energy, Inc.

We have relied, to the extent we deem such reliance proper, upon such certificates or comparable documents of officers and representatives of the Company and of public officials and upon statements and information furnished by officers and representatives of the Company with respect to the accuracy of material factual matters contained therein which were not independently established by us. In rendering the opinions expressed below, we have assumed, without independent investigation or verification of any kind, the genuineness of all signatures on documents we have reviewed, the legal capacity and competency of all natural persons signing all such documents, the authenticity and completeness of all documents submitted to us as originals, the conformity to authentic, complete original documents of all documents submitted to us as copies, the truthfulness, completeness and correctness of all factual representations and statements contained in all documents we have reviewed, the accuracy and completeness of all public records examined by us, and the accuracy of all statements in certificates of officers of the Company that we reviewed.

In rendering the opinions contained herein, we have assumed that: (i) the Registration Statement and any supplements and amendments thereto will be declared effective and will comply with all applicable laws (and will remain effective and in compliance at the time of resale or distribution of any Offered Shares thereunder); (ii) a prospectus supplement describing the Offered Shares offered pursuant to the Registration Statement, to the extent required by applicable law and relevant rules and regulations of the Commission, will be timely filed with the Commission and will comply with all applicable laws; (iii) the definitive terms of the Offered Shares will have been established in accordance with the authorizing resolutions adopted by the Board (or an authorized committee thereof), the Certificate of Incorporation and applicable law; (iv) the Selling Stockholders will resell or distribute the Offered Shares in the manner contemplated by the Registration Statement including the applicable Prospectus within the limits of the then remaining authorized but unissued shares of common stock; and (v) the Offered Shares will be issued and sold in compliance with applicable federal and state securities laws or applicable laws or regulations or any agreement or other instrument binding upon the Company and/or the Selling Stockholders, as applicable.

We have further assumed that the Offered Shares will be authorized, executed, and countersigned by the transfer agent or registrar therefor and delivered by the Selling Stockholders, as applicable, in accordance with applicable laws and sold as contemplated in the Registration Statement.

Based upon the foregoing assumptions, and subject to the qualifications and limitations stated herein, having considered such questions of law as we have deemed necessary as a basis for the opinion expressed below, we are of the opinion that (a) when the Offered Shares are sold for consideration not less than the par value per share thereof in the manner contemplated by the Registration Statement, the applicable prospectus supplement and such corporate action and (b) upon either the countersigning of the certificate representing the Offered Shares by a duly authorized signatory of the Company's registrar for common stock or the book entry of the Offered Shares by the transfer agent for the Company's common stock, such Offered Shares will be validly issued, fully paid and nonassessable.

The opinion expressed above is limited to questions arising under the Delaware General Corporation Law. We do not express any opinion as to the laws of any other jurisdiction.

This opinion letter is for your benefit in connection with the Registration Statement and may be relied upon by you and by persons entitled to rely upon it pursuant to the applicable provisions of the Securities Act. This opinion letter is provided solely in connection with the distribution of the Offered Shares pursuant to the Registration Statement and is not to be relied upon for any other purpose.

The opinion expressed above is as of the date hereof only, and we express no opinion as to, and assume no responsibility for, the effect of any fact or circumstance occurring, or of which we learn, subsequent to the date of this opinion letter, including, without limitation, legislative and other changes in the law or changes in circumstances affecting any party. We assume no responsibility to update this opinion letter for, or to advise you of, any such facts or circumstances of which we become aware, regardless of whether or not they affect the opinions expressed in this opinion letter.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the reference to our firm as counsel for the Company that has passed on the validity of the Offered Shares appearing under the caption "Legal Matters" in the Base Prospectus forming part of the Registration Statement or any Prospectus. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations of the Commission thereunder.

The opinion expressed above is limited to the matters stated in this opinion letter, and no opinion is implied or may be inferred beyond that expressly stated in this opinion letter.

Very truly yours,

/s/ White & Case LLP

DN / DJ / JYC / JH

Consent of Independent Registered Public Accounting Firm

We consent to the use of our reports dated February 26, 2025, with respect to the consolidated financial statements of NRG Energy, Inc., and the effectiveness of internal control over financial reporting, incorporated herein by reference, and to the reference to our firm under the heading “Experts” in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 29, 2026

Consent of Independent Auditors

We consent to the use of our report dated June 27, 2025, with respect to the combined financial statements of Fund III Projects, incorporated herein by reference, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 30, 2026

Consent of Independent Auditors

We consent to the use of our report dated June 26, 2025, with respect to the consolidated financial statements of Gridiron Intermediate Holdings, LLC and subsidiaries, incorporated herein by reference, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 30, 2026

Consent of Independent Auditors

We consent to the use of our report dated May 5, 2025, with respect to the consolidated financial statements of Lightning Power, LLC and subsidiaries, incorporated herein by reference, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 30, 2026

Consent of Independent Auditors

We consent to the use of our report dated June 24, 2025, with respect to the consolidated financial statements of Linebacker Power Funding, LLC and subsidiaries, incorporated herein by reference, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 30, 2026

Consent of Independent Auditors

We consent to the use of our report dated May 9, 2025, except for modifications disclosed in Note 1b and Note 14, for which the date is August 14, 2025, with respect to the consolidated financial statements of CCS Power Finance, LLC and subsidiaries, incorporated herein by reference, and to the reference to our firm under the heading "Experts" in the prospectus.

/s/ KPMG LLP

Philadelphia, Pennsylvania
January 30, 2026
