As filed with the Securities and Exchange Commission on November 3, 2026

Registration No. 333-

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

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

TERRESTRIAL ENERGY INC.

(Exact name of registrant as specified in its charter)

Delaware	**98-1785406**
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification Number)

2730 W. Tyvola Road, Suite 100
Charlotte, NC 28217
(646) 687-8212
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Simon Irish
Chief Executive Officer
Terrestrial Energy Inc.
2730 W. Tyvola Road, Suite 100
Charlotte, NC 28217
(646) 687-8212
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copy to:

Sean M. Jones
Coleman Wombwell
K&L Gates LLP
300 South Tryon Street, Suite 1000
Charlotte, NC 28202
(704) 331-7406

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

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 check the following box. ☒

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

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

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

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

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

Large accelerated filer ☐	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 the Securities Act. ☐

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

The information in this prospectus is not complete and may be changed. These securities may not be sold until the registration statement filed with the U.S. Securities and Exchange Commission is effective. The prospectus is not an offer to sell these securities and does not constitute the solicitation of offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

SUBJECT TO COMPLETION, DATED November 3, 2026



TERRESTRIAL ENERGY INC.

Secondary Offering of up to

2,263,805 SHARES OF COMMON STOCK

This prospectus relates to the resale by the selling stockholder identified herein (the "**Selling Stockholder**") of up to 2,263,805 shares (the "**Shares**") of the common stock, par value $0.0001 per share (the "**Common Stock**") of Terrestrial Energy Inc., a Delaware corporation ("**us**," "**we**," "**Terrestrial Energy**," or the "**Company**"). The Shares are issuable upon the exercise of stock options awarded to the Selling Stockholder during his employment with Terrestrial Energy Development, Inc. ("**TEDI**") before its business combination with the Company.

The Selling Stockholder may offer all or part of the Shares for resale from time to time through public or private transactions, at either prevailing market prices or at privately negotiated prices. The Shares are being registered to permit the Selling Stockholder to sell Shares from time to time, in amounts, at prices and on terms determined at the time of offering. The Selling Stockholder may sell the Shares through ordinary brokerage transactions, in underwritten offerings, directly to market makers of our securities or through any other means described in the section entitled "*Plan of Distribution*" herein. In connection with any sales of Shares offered hereunder, the Selling Stockholder, any underwriters, agents, brokers or dealers participating in such sales may be deemed to be "underwriters" within the meaning of the Securities Act, or the Exchange Act. We are registering the Shares for resale by the Selling Stockholder, or his donees, pledgees, transferees, distributes or other successors-in-interest selling our Common Stock or interests in our Common Stock received after the date of this prospectus from the Selling Stockholder as a gift, pledge, partnership distribution or other transfer.

As October 26, 2026, we had 105,790,799 shares of Common Stock and share equivalents outstanding, including 23,216,699 shares of Common Stock that would be issued and outstanding upon the exchange of outstanding Exchangeable Shares.

We will not receive any proceeds from the sale of the Shares by the Selling Stockholder. We will bear all costs, expenses, and fees in connection with the registration of the Shares. The Selling Stockholder will bear all commissions and discounts, if any, attributable to any sales of the Shares. We will receive the proceeds from any exercise of the Selling Stockholder's stock option awards. Assuming the exercise in full of all such stock options for cash, we would receive aggregate proceeds of approximately $1.6 million.

Our Common Stock and publicly traded warrants ("**Listed Warrants**") are listed on the Nasdaq Stock Market LLC ("**Nasdaq**") under the symbols "IMSR" and "IMSRW," respectively. On October 29, 2026, the closing price of our Common Stock was $3.46 per share and the closing price for our Listed Warrants was $0.63 per warrant.

We are an "emerging growth company" and a "smaller reporting company" under the federal securities laws and will be subject to reduced disclosure and public reporting requirements. See "*Summary - Implications of Being an Emerging Growth Company and a Smaller Reporting Company.*"

Investing in shares of our securities involves risks that are described in the "Risk Factors" section beginning on page 7 of this prospectus.

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

The date of this prospectus is , 2026.

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You should rely only on the information contained in this prospectus or any amendment or supplement to this prospectus. This prospectus is an offer to sell only the securities offered hereby, but only under the circumstances and in jurisdictions where it is lawful to do so. Neither we nor the Selling Stockholder has authorized anyone to provide you with information different from that contained in this prospectus or any amendment or supplement to this prospectus. Neither we nor the Selling Stockholder takes any responsibility for, nor can provide any assurance as to the reliability of, any information other than the information in this prospectus or any amendment or supplement to this prospectus. The information in this prospectus or any amendment or supplement to this prospectus is accurate only as of its date, regardless of the time of delivery of this prospectus or any amendment or supplement to this prospectus, as applicable, or any sale of the securities offered by this prospectus. Our business, financial condition, results of operations, and prospects may have changed since that date.

For Investors Outside the United States: We and the Selling Stockholder are offering to sell, and seeking offers to buy, the securities offered by this prospectus only in jurisdictions where offers and sales are permitted. Neither we nor the Selling Stockholder has done anything that would permit this offering or the possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the securities offered by this prospectus and the distribution of this prospectus outside the United States.

ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement on Form S-3 that we filed with the SEC using the "shelf" registration process. Under the shelf registration process, the Selling Stockholder may, from time to time, sell the securities described in this prospectus through any means described in the section titled "*Plan of Distribution*." More specific terms of any securities that the Selling Stockholder and his permitted transferees offer and sell may be provided in a prospectus supplement that describes, among other things, the specific amounts and prices of the securities being offered and the terms of the offering.

We may also provide a prospectus supplement or post-effective amendment to the registration statement of which this prospectus forms a part to add information to, or update or change information contained in, this prospectus. Any statement contained in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in such prospectus supplement or post-effective amendment modifies or supersedes such statement. Any statement so modified will be deemed to constitute a part of this prospectus only as so modified, and any statement so superseded will be deemed not to constitute a part of this prospectus. You should read both this prospectus and any applicable prospectus supplement or post-effective amendment to the registration statement of which this prospectus forms a part together with the additional information to which we refer you in the sections of this prospectus titled "*Where You Can Find More Information*."

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

Unless otherwise noted or the context otherwise requires, references to the "Company," "Terrestrial Energy," "Terrestrial Energy Inc.," "we," "us," or "our" refer to the business of Terrestrial Energy and its subsidiaries.

We were incorporated on April 4, 2024, as a Cayman Islands exempted corporation under the name HCM II Acquisition Corp. ("**HCM II**") for the purpose of effecting a merger, amalgamation, share exchange, asset acquisition, share purchase, reorganization or similar business combination with one or more businesses. On October 23, 2025, HCM II domesticated as a Delaware corporation and changed its name to "Terrestrial Energy Inc." On October 28, 2025, pursuant to the Business Combination Agreement, by and among HCM II, HCM II Merger Sub Inc., a direct wholly owned subsidiary of HCM II ("**Merger Sub**"), and TEDI, dated as of March 26, 2025, as amended by Amendment No. 1 dated effective as of October 26, 2025 (the "**Business Combination Agreement**"), the Company completed the domestication, merger and other transactions contemplated by the Business Combination Agreement (the "**Business Combination**") with TEDI, with TEDI surviving as a wholly owned subsidiary of the Company. Following the Business Combination, the Company became a holding company whose operations are conducted through TEDI and whose primary asset is its equity interest in TEDI. For accounting and financial reporting purposes, the Business Combination was accounted for as a reverse recapitalization, with TEDI treated as the accounting acquirer and HCM II treated as the accounting acquiree.

References to a year refer to our fiscal years ended on December 31 of the specified year.

Certain monetary amounts, percentages and other figures included herein have been subject to rounding adjustments. Accordingly, figures shown as totals in certain tables and charts may not be the arithmetic aggregation of the figures that precede them, and figures expressed as percentages in the text may not total 100% or, as applicable, when aggregated may not be the arithmetic aggregation of the percentages that precede them.

MARKET AND INDUSTRY DATA

The Company is responsible for the disclosure contained in this prospectus. Information contained in this prospectus concerning the market and the industry in which the Company competes, including its market position, general expectations of market opportunity, size and growth rates, is based on information from various third-party sources, on assumptions made by the Company based on such sources and the Company's knowledge of the markets for its services and solutions. This information and any estimates provided herein involve numerous assumptions and limitations, and you are cautioned not to give undue weight to such information. Third-party sources generally state that the information contained in such source has been obtained from sources believed to be reliable but that there can be no assurance as to the accuracy or completeness of such information. The Company has not independently verified this third-party information. The industry in which the Company is subject to a high degree of uncertainty and risk. As a result, the estimates and market and industry information provided in this prospectus are subject to change based on various factors, including those described in the sections of this prospectus entitled "*Cautionary Statement Regarding Forward-Looking Statements*", "*Risk Factors*", as well as the applicable prospectus supplement and any applicable free writing prospectus, and under similar headings in other documents that are incorporated by reference into this prospectus.

CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, including with respect to the effects of the Business Combination Agreement. These statements are based on the beliefs and assumptions of the Company's management and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. While the Company believes that its plans, intentions and expectations reflected in or suggested by these forward-looking statements are reasonable, the Company cannot assure you that it will achieve or realize these plans, intentions or expectations. Forward-looking statements can generally be identified by the use of words such as "anticipate," "believe," "can," "continue," "could," "estimate," "expect," "forecast," "intend," "may," "might," "plan," "possible," "potential," "predict," "project," "seek," "should," "strive," "target," "will," "would" and similar expressions, but the absence of these words does not mean that a statement is not forward-looking.

Forward-looking statements in this prospectus and in any document incorporated by reference in this prospectus may include, for example, statements about the Company, including:

- the ability to realize the benefits expected from the Business Combination;
- the ability to maintain the listing of the Common Stock and the Listed Warrants on Nasdaq;
- the ability to raise financing in the future and to comply with restrictive covenants related to long-term indebtedness;
- the future financial performance of the Company;
- the Company's ability to retain or recruit its respective officers, key employees or directors;
- the Company's ability to comply with laws and regulations applicable to its business; and
- expansion plans and opportunities.

These forward-looking statements are based on information available as of the date of this report and the Company's management teams' current expectations, forecasts and assumptions, and involve a number of judgments, known and unknown risks and uncertainties and other factors, many of which are outside the control of the Company and its directors, officers and affiliates. Accordingly, forward-looking statements should not be relied upon as representing the Company's management teams' respective views as of any subsequent date. The Company does not undertake any obligation to update, add or to otherwise correct any forward-looking statements contained herein to reflect events or circumstances after the date they were made, whether as a result of new information, future events, inaccuracies that become apparent after the date hereof or otherwise, except as may be required under applicable securities laws.

You should not place undue reliance on these forward-looking statements. Should one or more of a number of known and unknown risks and uncertainties materialize, or should any of our assumptions prove incorrect, our actual results or performance may be materially different from those expressed or implied by these forward-looking statements. Some factors that could cause actual results to differ include, but are not limited to:

- the fact that the Company has a limited history in commercial operations which limits the accuracy of any forward-looking forecasts, prospects or business outlook or plans;
- that the Company may not be able to generate positive cashflow from its expected future business operations;
- there may be time delays, unforeseen expenses, increased capital costs, and other complications;
- inability to convert current commercial discussions and/or memorandums of understanding with customers into definitive contracts;
- operating in a highly competitive industry;
- inability to obtain sufficient capital or other resources necessary to provide for such production;
- any failure by management to manage growth properly could negatively impact our business;
- power or other utility disruption or shortage;
- increasing costs, including rising electricity and other utility costs, or limited access to raw materials;
- any failure to comply with the laws and regulations governing the use, transportation, and disposal of toxic, hazardous and/or radioactive materials;
- any inability to meet individual customer specifications;
- work stoppages or similar difficulties, breakdown in labor relations, or a shortage of skilled technicians and engineers;
- failure to retain key personnel or attract additional qualified personnel;
- failure to comply with certain agreements with government entities that have provided us with certain incentives and favorable financing;
- impacts of force majeure events;
- that the Company has generated negative operating cash flows and may experience negative cash flow from operations in the future;
- extensive and costly environmental requirements;
- the need to obtain and sustain governmental approvals and permits;
- failure to comply with applicable anti-corruption, anti-bribery, anti-money laundering and similar laws and regulations;
- costs of compliance with environmental, health and safety regulations;
- the impacts of climate change;
- possible litigation risks, including permit disputes (including in respect of access and/or validity of tenure), environmental claims, occupational health and safety claims and employee claims;
- any infringement of the intellectual property rights of third parties;
- failure to adequately protect intellectual property rights;
- issue with information technology systems, including cyber threats, disruption, damage and failure;
- use of resources and management attention related to the requirements of being a public company in the United States;
- risks relating to the negative public or potential perception of the Company or the nuclear energy industry in general;
- changes to United States trade policies, including new tariffs or the renegotiation or termination of existing trade agreements or treaties; and
- substantial governmental support for competing technologies or their fuel supply may reduce our competitive advantage.

SUMMARY

This summary highlights selected information from this prospectus and may not contain all of the information that is important to you in making an investment decision. Before investing in our securities, you should read this entire document carefully, including the information set forth under the heading "Risk Factors" and our consolidated financial statements and the related notes and the other information incorporated by reference into this prospectus. Some of the statements in this prospectus constitute forward-looking statements. See "Cautionary Statement Regarding Forward-Looking Statements."

Overview

The Business

Terrestrial Energy Inc. is an advanced nuclear technology company developing the Integral Molten Salt Reactor nuclear plant (the "**IMSR Plant**"), which uses the Company's proprietary design of Generation IV reactor technology. The IMSR Plant is designed to offer large improvements in affordability and utility of nuclear plants and by extension the cost competitiveness of nuclear energy supply when compared to plants built using Light Water Reactor technology as well as other Generation IV technology.

The IMSR Plant uses molten salt reactor technology, which is characterized by its distinctive use of a molten salt eutectic that acts as both nuclear fuel and reactor coolant. This approach enables stable, high-temperature reactor operation, which supports high-efficiency electricity generation using steam turbines as well as direct use as a supply of thermal energy for industrial plant operators seeking clean energy alternatives to fossil fuel combustion in industrial processes.

The Company estimates that the operational advantages accruing from reactor technology and plant design choices place the IMSR Plant competitively in a large and growing serviceable addressable market valued at $1.4 trillion today in Organization for Economic Co-operation and Development (OECD) countries. This market includes both clean, firm, and high-temperature thermal energy, and grid-based electric power supply, across a wide range of industrial and grid applications.

The Company believes that its choice of long-proven molten salt reactor technology for the IMSR Plant, designed within a pragmatic and market-focused innovative process that includes the use of standard nuclear fuel, delivers a market-competitive product in a compelling time frame. The IMSR Plant is scheduled for first commercial operation by the mid-2030s, and fleet operation commencing in the late 2030s.

The Company believes that timing of IMSR Plant development is aligned with changes in market demand for nuclear energy and nuclear reactor innovation. These are driven by major industrial innovations in other industrial sectors, by national energy supply insecurity, elevated by the Ukrainian War, by national energy policy objectives particularly in the US, and by a broad realization that net-zero is not feasible without a massive expansion in nuclear energy supply as evidenced by declarations at COP28 in Dubai.

Corporate History

HCM II was a special purpose acquisition company incorporated on April 4, 2024, as a Cayman Islands exempted corporation for the purpose of effecting a merger, share exchange, asset acquisition, stock purchase, reorganization, or similar business combination with one or more businesses. On October 23, 2025, HCM II domesticated as a Delaware corporation and changed its name to "Terrestrial Energy Inc." On October 28, 2025, pursuant to the Business Combination Agreement, dated as of March 26, 2025, as amended, the Company completed the Business Combination with TEDI, with TEDI surviving as a wholly owned subsidiary of the Company. Following the Business Combination, the Company became a holding company whose operations are conducted through TEDI and whose primary asset is its equity interest in TEDI. For accounting and financial reporting purposes, the Business Combination was accounted for as a reverse recapitalization, with TEDI treated as the accounting acquirer and HCM II treated as the accounting acquiree. Our principal executive office is located at 2730 W. Tyvola Road, Suite 100, Charlotte, NC 28217. Our telephone number is (646) 687-8212. Our website address is *https://www.terrestrialenergy.com/*.

THE OFFERING

Issuer	Terrestrial Energy Inc.
Common Stock That May Be Offered and Sold From Time to Time by the Selling Stockholder	Up to 2,263,805 shares of Common Stock issuable upon the exercise of outstanding stock options.
Terms of the Offering	The Selling Stockholder will determine when and how he will dispose of any Shares.
Shares Outstanding Before this Offering	82,771,778 shares of Common Stock issued and outstanding.
Shares Outstanding After this Offering	85,035,583 shares of Common Stock issued and outstanding reflecting the full issuance of all Shares upon exercise of the stock option awards held by the Selling Stockholder.
Use of Proceeds	We will receive the proceeds from any exercise of the Selling Stockholder's stock option awards. Assuming the exercise in full of all such stock options for cash, we would receive aggregate proceeds of approximately $1.6 million. We intend to use such proceeds, if any, for general corporate purposes. See "*Use of Proceeds*." All of the Shares offered by the Selling Stockholder will be sold by him for his account. We will not receive any of the proceeds from his sales. The Selling Stockholder will pay any underwriting fees, discounts, selling commissions, stock transfer taxes, and certain legal expenses incurred by the Selling Stockholder in disposing of his Shares, and we will bear all other costs, fees, and expenses incurred in effecting the registration of such securities covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees, and fees and expenses of our counsel and our independent registered public accountants.
Risk Factors	See the section titled "*Risk Factors*" and other information included in this prospectus, and incorporated by reference herein, for a discussion of factors you should consider carefully before deciding to invest in our capital stock.
Nasdaq Symbol for our Common Stock	IMSR

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

We are an "emerging growth company," as defined in Section 2(a) of the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As such, we are eligible to take advantage of certain exemptions from various reporting requirements that are applicable to other public companies that are not emerging growth companies including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a non-binding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. If some investors find our securities less attractive as a result, there may be a less active trading market for our securities and the prices of our securities may be more volatile. In addition, Section 107 of the JOBS Act also provides that an emerging growth company can take advantage of the extended transition period provided in Section 7(a)(2)(B) of the Securities Act for complying with new or revised accounting standards. In other words, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies.

We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the closing of our IPO, (b) in which we have total annual gross revenue of at least $1.235 billion, or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30, and (2) the date on which we have issued more than $1.0 billion in non-convertible debt securities during the prior three-year period. References herein to emerging growth company will have the meaning associated with it in the JOBS Act.

We have elected to take advantage of certain of the reduced disclosure obligations in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. As a result, the information that we provide to holders of our Common Stock may be different than what you might receive from other public reporting companies in which you hold equity interests.

We have elected to avail ourselves of the provision of the JOBS Act that permits emerging growth companies to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. As a result, we will not be subject to new or revised accounting standards at the same time as other public companies that are not emerging growth companies.

We are also a “smaller reporting company” as defined in the Exchange Act. We may continue to be a smaller reporting company even after we are no longer an emerging growth company. We may take advantage of certain of the scaled disclosures available to smaller reporting companies until the fiscal year following the determination that our voting and non-voting common stock held by non-affiliates is $250 million or more measured on the last business day of our second fiscal quarter, or our annual revenues are less than $100 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is $700 million or more measured on the last business day of our second fiscal quarter.

RISK FACTORS

An investment in our securities involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with risk factors described under the section captioned "Risk Factors" contained in our Annual Report on Form 10-K for our most recent fiscal year (together with any material changes thereto contained in subsequent filed Quarterly Reports on Form 10-Q and Current Reports on Form 8-K) and those contained in our other filings with the SEC, which are incorporated by reference in this prospectus, together with the other information contained in or incorporated by reference in this prospectus, including our consolidated financial statements and the related notes. If any of the following events occur, our business, financial condition and operating results may be materially adversely affected. In that event, the trading price of our securities could decline, and you could lose all or part of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of, or that we currently believe are not material, may also become important factors that adversely affect our business or results of operations.

Risks Related to this Offering and Our Common Stock ***Sales, or the perception of sales, of our Common Stock or exercise of our warrants by us or our existing securityholders could dilute existing stockholders and cause the market price for our Common Stock or Listed Warrants to decline.***

The sale of substantial amounts of Common Stock or our warrants could dilute existing security holders and such sales, or the perception that such sales could occur, could harm the prevailing market price of the Common Stock or our Listed Warrants. These sales, or the possibility that these sales may occur, also might make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate.

We have registered certain of our securities for resale pursuant to registration statements with the SEC, including this registration statement. As restrictions on resale end, the market price of our Common Stock could drop significantly if the holders of these securities sell such securities or are perceived by the market as intending to sell them. These factors could also make it more difficult for us to raise additional funds through future offerings of our Common Stock or other securities.

In particular and pursuant to this registration statement, the Selling Stockholder can sell, under this prospectus, up to 2,263,805 shares of Common Stock, constituting approximately 2.7% of our outstanding Common Stock, as of October 26, 2026.

In the case of this registration statement, depending on the price, the public securityholders may have paid significantly more than the Selling Stockholder for any Shares they may have purchased in the open market based on variable market price. All of the securities offered pursuant to such registration statement may be resold for so long as the applicable registration statement and prospectus are available for use.

The sale of all or a substantial portion of the securities being offered in this prospectus could result in a significant decline in the public trading price of our securities. Despite such a decline in the public trading price, the Selling Stockholder may still experience a positive rate of return on the securities he acquired through exercise of the stock options.

In addition, the shares of Common Stock reserved for future issuance under our equity incentive plans will become eligible for sale in the public market once those shares are issued, subject to provisions relating to various vesting agreements, lock-up agreements and, in some cases, limitations under Rule 144, as applicable. Approximately 19,165,531 shares of Common Stock are reserved for issuance under our equity incentive plans. Shares registered under our registration statements on Form S-8 that have been filed to date are available for sale in the open market upon issuance.

USE OF PROCEEDS

We will receive the proceeds from any exercise of the Selling Stockholder's stock option awards for cash. Assuming the exercise in full of all such stock options for cash, we would receive aggregate proceeds of approximately $1.6 million. We intend to use the proceeds received from the exercise of the stock options, if any, for general corporate purposes.

All of the Shares offered by the Selling Stockholder will be sold by him for his account. We will not receive any of the proceeds from his sales.

The Selling Stockholder will pay any underwriting fees, discounts, selling commissions, stock transfer taxes, and certain legal expenses incurred by the Selling Stockholder in disposing of his Shares, and we will bear all other costs, fees, and expenses incurred in effecting the registration of such securities covered by this prospectus, including, without limitation, all registration and filing fees, Nasdaq listing fees, and fees and expenses of our counsel and our independent registered public accountants.

SELLING STOCKHOLDER

This prospectus relates to the possible resale by the Selling Stockholder from time to time of up to 2,263,805 shares of Common Stock issuable upon the exercise of stock options.

The Selling Stockholder may offer and sell, from time to time, any or all of the Shares being offered for resale by this prospectus.

In this prospectus, the term "Selling Stockholder" includes (i) the person identified in the table below (as such table may be amended from time to time by means of an amendment to the registration statement of which this prospectus forms a part or by a supplement to this prospectus) and (ii) any donees, pledgees, transferees or other successors-in-interest that acquire any of the Shares covered by this prospectus after the date of this prospectus from the named Selling Stockholder as a gift, pledge, or other non-sale related transfer.

The table below sets forth, as of October 26, 2026, the name of the Selling Stockholder for which we are registering Shares for resale to the public, and the total number of shares of Common Stock the Selling Stockholder may offer pursuant to this prospectus. In accordance with SEC rules, individuals and entities below are shown as having beneficial ownership over securities they own or have the right to acquire within 60 days, as well as securities for which they have the right to vote or dispose of such securities. Also, in accordance with SEC rules, for purposes of calculating percentages of beneficial ownership, securities which a person has the right to acquire within 60 days of the date of this prospectus are included both in that person's beneficial ownership as well as in the total number of securities issued and outstanding used to calculate that person's percentage ownership but not for purposes of calculating the percentage for other persons. In some cases, the same securities may be reflected more than once in the table below because more than one holder may be deemed the beneficial owner of the same securities. The information set forth in the table below is based upon the information available to us as of the date hereof. Unless otherwise indicated, we believe that all persons named in the table have shared or sole voting and investment power with respect to all ordinary shares beneficially owned by them and the business address of each of the following entities or individuals is 2730 W. Tyvola Road, Suite 100, Charlotte, NC 28217.

Because the Selling Stockholder may dispose of all, none or some portion of his Shares, no estimate can be given as to the number of Shares that will be beneficially owned by the Selling Stockholder upon termination of this offering. For purposes of the table below, however, we have assumed that after termination of this offering none of the Shares covered by this prospectus will be beneficially owned by the Selling Stockholder and further assumed that the Selling Stockholder will not acquire beneficial ownership of any additional securities during the offering. In addition, the Selling Stockholder may have sold, transferred or otherwise disposed of, or may sell, transfer or otherwise dispose of, at any time and from time to time, our securities in transactions exempt from the registration requirements of the Securities Act after the date on which the information in the table is presented. Please see the section titled "*Plan of Distribution*" for further information regarding the Selling Stockholder's method of distributing these Shares. In the table set forth below Common Stock Beneficially Owned is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. In accordance with SEC rules, shares of our Common Stock that may be acquired upon exercise of stock options or warrants that are exercisable or that become exercisable within 60 days of October 26, 2026 are deemed beneficially owned by the holders of such options and warrants and are deemed outstanding for the purpose of computing the percentage of ownership of such person, but are not treated as outstanding for the purpose of computing the percentage of ownership of any other person. The percentage of our Common Stock beneficially owned is based on 82,771,778 shares of Common Stock outstanding as of October 26, 2026.

Name	Common Stock Beneficially Owned Prior to Offering	Beneficial Ownership Percentage	Common Stock Registered Hereby	Common Stock Beneficially Owned After Sale of all Common Stock Offered Hereby	Beneficial Ownership Percentage
Louis Plowden-Wardlaw (1)	[2,263,805]	[__]	[2,263,805]	[-]	[__]

(1) Common Stock Registered Hereby consists of 2,263,805 shares of Common Stock issuable upon exercise of outstanding stock option awards. Mr. Plowden-Wardlaw previously served as the Company's General Counsel from [__] to [__]. Mr. Plowden-Wardlaw's stock option awards were granted to him as equity compensation while he served as General Counsel. Mr. Plowden-Wardlaw's business address is [__].

PLAN OF DISTRIBUTION

The Selling Stockholder, which as used herein includes donees, pledgees, transferees, distributes or other successors-in-interest selling Shares or interests in any Shares received after the date of this prospectus from the Selling Stockholder as a gift, pledge, distribution, or other transfer, may, from time to time, sell, transfer, distribute, or otherwise dispose of certain of his Shares or interests in our shares of Shares on any stock exchange, market, or trading facility on which shares of Common Stock are traded or in private transactions. These dispositions may be at fixed prices, at prevailing market prices at the time of sale, at prices related to the prevailing market prices, at varying prices determined at the time of sale, or at negotiated prices.

The Selling Stockholder may use any one or more of the following methods when disposing of his securities or interests therein:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- one or more underwritten offerings;
- block trades in which the broker-dealer will attempt to sell the securities as agent, but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its accounts;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- distributions to any members, partners, or stockholders;
- short sales effected after the date of the registration statement of which this prospectus forms a part is declared effective by the SEC;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- in market transactions, including transactions on a national securities exchange or quotations service or over-the-counter market;
- directly to one or more purchasers;
- through agents;
- broker-dealers who may agree with the Selling Stockholder to sell a specified number of such securities at a stipulated price per share; or
- a combination of any such methods of sale.

The Selling Stockholder may, from time to time, pledge or grant a security interest in the Shares and, if the Selling Stockholder defaults in the performance of his secured obligations, the pledgees or secured parties may offer and sell such securities, from time to time, under this prospectus, or under an amendment or supplement to this prospectus amending the list of the Selling Stockholder to include the pledgee, transferee, or other successors-in-interest as the Selling Stockholder under this prospectus. The Selling Stockholder also may transfer securities 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.

In connection with the sale of Shares or interests therein, the Selling Stockholder may enter into hedging transactions with broker-dealers or other financial institutions, which may in turn engage in short sales of such securities in the course of hedging the positions they assume. The Selling Stockholder may also sell Shares short and deliver these securities to close out his short positions, or loan or pledge Shares to broker-dealers that in turn may sell these securities. The Selling Stockholder may also enter into option or other transactions with broker-dealers or other financial institutions or the creation of one or more derivative securities that require the delivery to such broker-dealer or other financial institution of Shares offered by this prospectus, which shares such broker-dealer or other financial institution may resell pursuant to this prospectus (as supplemented or amended to reflect such transaction).

The aggregate proceeds to the Selling Stockholder from the sale of the Shares offered by them will be the purchase price of such securities, less discounts or commissions, if any. The Selling Stockholder reserve the right to accept and, together with his agents from time to time, to reject, in whole or in part, any proposed purchase of Shares to be made directly or through agents. We will not receive any of the proceeds from any offering by the Selling Stockholder.

The Selling Stockholder also may in the future resell Shares in open-market transactions in reliance upon Rule 144 under the Securities Act (provided that he meets the criteria and conforms to the requirements of that rule), or pursuant to other available exemptions from the registration requirements of the Securities Act.

The Selling Stockholder and any underwriters, broker-dealers, or agents that participate in the sale of Shares or interests therein may be "underwriters" within the meaning of Section 2(11) of the Securities Act. Any discounts, commissions, concessions, or profit they earn on any resale of such securities may be underwriting discounts and commissions under the Securities Act. If any Selling Stockholder is an "underwriter" within the meaning of Section 2(11) of the Securities Act, then the Selling Stockholder will be subject to the prospectus delivery requirements of the Securities Act. Underwriters and their controlling persons, dealers, and agents may be entitled, under agreements entered into with us and the Selling Stockholder, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act.

To the extent required, the number of Shares to be sold, the respective purchase prices and public offering prices, the names of any agent, dealer, or underwriter, and any applicable discounts, commissions, concessions, or other compensation with respect to a particular offer will be set forth in an accompanying prospectus supplement or, if appropriate, a post-effective amendment to the registration statement that includes this prospectus.

To facilitate the offering of securities offered by the Selling Stockholder, certain persons participating in the offering may engage in transactions that stabilize, maintain, or otherwise affect the price of our Common Stock. This may include over-allotments or short sales, which involve the sale by persons participating in the offering of more shares of Common Stock than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of our Common Stock by bidding for or purchasing Common Stock in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if the Common Stock sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of our Common Stock at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

We and the Selling Stockholder may agree to indemnify any underwriter, broker-dealer, or agent against certain liabilities related to the selling of the securities, including liabilities arising under the Securities Act.

The Selling Stockholder will pay any underwriting fees, discounts, selling commissions, transfer taxes, and certain legal expenses relating to the offering.

A selling securityholder that is an entity may elect to make an in-kind distribution of Shares to its members, partners, or stockholders pursuant to the registration statement of which this prospectus forms a part by delivering a prospectus. To the extent that such members, partners, or stockholders are not affiliates of ours, such members, partners, or stockholders would thereby receive freely tradable Shares pursuant to the distribution through a registration statement.

LEGAL MATTERS

The validity of the securities offered hereby has been passed upon for us by Bryan Cave Leighton Paisner LLP.

EXPERTS

The consolidated financial statements of Terrestrial Energy Inc. as of December 31, 2025 and 2024 and for each of the years in the two-year period ended December 31, 2025 incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2025, filed with the SEC on March 30, 2026 have been audited by UHY LLP, an independent registered public accounting firm, as stated in their report thereon, which report expresses an unqualified opinion, and are incorporated in this prospectus by reference in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

We file annual, quarterly, and current reports, proxy statements, and other information with the SEC. We have also filed a registration statement on Form S-3, including exhibits, under the Securities Act with respect to the securities offered by this prospectus. This prospectus is part of the registration statement, but does not contain all of the information included in the registration statement or the exhibits filed with the registration statement. For further information about us and the securities offered hereby, we refer you to the registration statement and the exhibits filed with the registration statement. Statements contained in this prospectus regarding the contents of any contract or any other document that is filed as an exhibit to the registration statement are not necessarily complete, and each such statement is qualified in all respects by reference to the full text of such contract or other document filed as an exhibit to the registration statement.

Our SEC filings are available to the public on the internet at a website maintained by the SEC located at *http://www.sec.gov*. Those filings are also available to the public on, or accessible through, our website under the heading "Investors" at *https://www.terrestrialenergy.com/*. Information contained on our website is not a part of this prospectus and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN DOCUMENTS BY REFERENCE

The SEC permits us to "incorporate by reference" the information and reports we file with it. This means that we can disclose important information to you by referring to another document. The information that we incorporate by reference is considered to be part of this prospectus supplement, and later information that we file with the SEC automatically updates and supersedes this information. We incorporate by reference the documents listed below, except to the extent information in those documents is different from the information contained in this prospectus supplement, and all future documents filed with the SEC under Sections 13(a), 13(c), 14, or 15(d) of the Exchange Act until we terminate the offering of these securities:

- Our Annual Report on Form 10-K for the fiscal year ended December 31, 2025, filed with the SEC on March 30, 2026;
- Our Quarterly Reports on Form 10-Q, filed with the SEC on May 14, 2026 and August 11, 2026;
- Our Current Reports on Form 8-K filed with the SEC on April 16, 2026, May 8, 2026, June 12, 2026, July 17, 2026, July 28, 2026, July 31, 2026, and October 27, 2026, to the extent the information in such report is filed and not furnished;
- Our Definitive Proxy Statement on Schedule 14A (other than information furnished rather than filed), filed with the SEC on April 29, 2026; and
- The description of the Company's common stock contained in Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q, filed by the Company with the SEC on May 14, 2026, including any further amendment or report filed hereafter for the purpose of updating such description.

All documents subsequently filed by the Company pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), prior to the filing of a post-effective amendment which indicates that all securities offered hereby have been sold or which deregisters all securities then remaining unsold, shall be deemed to be incorporated by reference in this Registration Statement and to be a part hereof from the date of filing of such documents. Any statement contained herein or in a document, all or a portion of which is incorporated or deemed to be incorporated by reference herein, shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement.

Notwithstanding the foregoing, no information is incorporated by reference in this Registration Statement where such information under applicable forms and regulations of the Commission is not deemed to be "filed" under Section 18 of the Exchange Act or otherwise subject to the liabilities of that section, unless the report or filing containing such information indicates that the information therein is to be considered "filed" under the Exchange Act or is to be incorporated by reference in this Registration Statement.

We will furnish without charge to you, on written or oral request, a copy of any or all of the documents incorporated by reference, including exhibits to these documents. You should direct any requests for documents to:

Terrestrial Energy Inc.
2730 W. Tyvola Road, Suite 100
Charlotte, NC 28217
Attention: Corporate Secretary
Telephone: (646) 687-8212

TERRESTRIAL ENERGY INC.

Secondary Offering of up to

2,263,805 SHARES OF COMMON STOCK



PROSPECTUS

, 2026

PART II

INFORMATION NOT REQUIRED IN PROSPECTUS

Item 14. Other Expenses of Issuance and Distribution.

The following is an itemized statement of expenses of the Company in connection with the issuance and delivery of the securities being registered hereby, other than underwriting discounts and commissions.

SEC registration fee	$ 647.97
Printing Expenses	*
Nasdaq Listing Fees	*
Trustee Fees and Expenses	*
Accounting Fees and Expenses	*
Legal Fees and Expenses	*
Miscellaneous	*
Total	*

* These fees will be dependent on the types of securities offered and number of offerings and, therefore, cannot be estimated at this time.

Item 15. Indemnification of Directors and Officers.

The following summary is qualified in its entirety by reference to the complete text of any statutes referred to below and the Certificate of Incorporation.

Section 145 of the DGCL permits a Delaware 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, 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.

In the case of an action by or in the right of the corporation to procure a judgment in its favor, Section 145 of the DGCL permits a Delaware 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 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) 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 and 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 that the Court of Chancery or such other court shall deem proper.

Section 145 of the DGCL also permits a Delaware 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 such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under Section 145 of the DGCL.

Article VII of our Certificate of Incorporation provides that, to the fullest extent permitted by the DGCL, a director or officer shall not be personally liable to us or our stockholders for monetary damages for any breach of fiduciary duty owed to us or our stockholders.

Section 27 of our Bylaws provides that we shall indemnify (and advance expenses to) our officers and directors to the full extent permitted by the DGCL.

We have directors' and officers' liability insurance insuring our directors and officers against liability for acts or omissions in their capacities as directors or officers, subject to certain exclusions. Such insurance also insures us against losses which we may incur in indemnifying our officers and directors.

As permitted by the DGCL, we have entered into indemnification agreements with each of our directors and executive officers that require us to indemnify such persons against various actions including, but not limited to, third-party actions where such director or executive officer, by reason of his or her corporate status, is, or is threatened to be made, a party to or participant in any threatened, pending or completed action, or by reason of anything done or not done by such director in any such capacity. We are obligated to indemnify directors and executive officers against all costs, fees, judgments, fines, and amounts paid in settlement actually and reasonably incurred by such directors or executive officers in connection with such action, if such directors or executive officers acted in good faith and in a manner they reasonably believed to be in or not opposed to our best interests, and with respect to any criminal proceeding, had no reasonable cause to believe their conduct was unlawful. We also must advance to our directors and executive officers expenses (including attorney's fees) incurred by or on behalf of such directors and executive officers no later than 30 days after our receipt of a statement or statements from directors or executive officers requesting such payments from time to time. Pursuant to the indemnification agreements, the directors or executive officers undertake to repay and advance to the extent it is ultimately determined that they are not entitled to be indemnified by us.

Item 16. Exhibits.

EXHIBIT INDEX

Exhibit Number	Description
2.1#	Business Combination Agreement, dated as of March 26, 2025, by and among HCM II Acquisition Corp., HCM II Merger Sub Inc., and Terrestrial Energy Inc. (incorporated by reference herein to Exhibit 2.1 filed with the Registration Statement on Form S-4/A (Reg. No. 333-288735) filed by the registrant on September 23, 2025).
2.2	Amendment No. 1 to Business Combination Agreement, effective as of October 26, 2025, by and among HCM II Acquisition Corp., HCM II Merger Sub Inc., and Terrestrial Energy Inc.
2.3	Certificate of Merger of HCM II Merger Sub Inc. with and into Terrestrial Energy Inc.
3.1	Composite Certificate of Incorporation of Terrestrial Energy Inc. (as amended through March 27, 2026) (incorporated by reference to Exhibit 3.1 of the Company's Annual Report on Form 10-K, filed with the SEC on March 30, 2026).
3.2	Certificate of Designations for Special Voting Preferred Stock (incorporated by reference to Exhibit 3.3 of the Company's Annual Report on Form 10-K, filed with the SEC on March 30, 2026).
3.3	Composite Bylaws of Terrestrial Energy Inc. (as amended through October 28, 2025) (incorporated by reference to Exhibit 3.2 of the Company's Annual Report on Form 10-K, filed with the SEC on March 30, 2026).
4.1	Specimen Common Stock Certificate of the Registrant (incorporated by reference herein to Exhibit 4.5 filed with the Registration Statement on Form S-4/A (Reg. No. 333-288735) filed by the registrant on September 23, 2025).
4.2	Specimen Warrant Certificate of Terrestrial Energy Inc. (incorporated by reference to Exhibit 4.2 of the Company's Annual Report on Form 10-K, filed with the SEC on March 30, 2026).
4.3	Amended and Restated Warrant Agreement, dated October 28, 2025, by and between Terrestrial Energy Inc. and Continental Stock Transfer & Trust Company, as warrant agent (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on November 3, 2025, File No. 001-42252).
5.1	Opinion of Bryan Cave Leighton Paisner LLP (filed herewith).
23.1	Consent of UHY LLP, Independent Registered Public Accounting Firm of Terrestrial Energy Inc. (filed herewith).
23.2	Consent of Bryan Cave Leighton Paisner LLP (contained in Exhibit 5.1 and filed herewith).
24.1	Power of attorney (set forth on the signature page of this registration statement).
107	Filing Fee Table (filed herewith).

Certain schedules and similar attachments to this Exhibit have been omitted in accordance with Item 601(a)(5) of Regulation S-K. The Company agrees to furnish supplementally a copy of any omitted exhibit or schedule to SEC upon its request.

Item 17. Undertakings.

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant, pursuant to the provisions described under Item 15 or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification by it 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 the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes:

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

(i) to include any prospectus required by Section 10(a)(3) of the Securities Act;

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

(iii) to include any material information with respect to the plan of distribution not previously disclosed in this registration statement or any material change to such information in this registration statement;

provided, however, that subparagraphs (i), (ii) and (iii) do not apply if the information required to be included in a post-effective amendment by those subparagraphs is contained in reports filed with or furnished to the SEC by the registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in this 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 of 1933 to any purchaser if the registrant is relying on Rule 430B: (A) each prospectus filed by the registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and (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 of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. *Provided*, *however*, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser, if the registrant is subject to Rule 430C, each prospectus filed pursuant to Rule 424(b) as part of a registration statement relating to an offering, other than registration statements relying on Rule 430B or other than prospectuses filed in reliance on Rule 430A, shall be deemed to be part of and included in the registration statement as of the date it is first used after effectiveness; 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 first use, 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 date of first use

(6) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser in the initial distribution of the securities: the undersigned registrant undertakes that in a primary offering of securities of the 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, the 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 the 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 the undersigned registrant or used or referred to by the 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 the undersigned registrant to the purchaser.

(7) That, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in this 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.

(8) That, for purposes of determining any liability under the Securities Act of 1933, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b) (1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(9) That, for the purpose of determining any liability under the Securities Act of 1933, each post-effective amendment that contains a form of prospectus 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.

(10) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all 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 Charlotte, State of North Carolina, on this 3rd day of November 2026.

Terrestrial Energy Inc.

/s/ *Simon Irish*
Simon Irish
Chief Executive Officer
(Principal Executive Officer)

Terrestrial Energy Inc.

/s/ *Brian Thrasher*
Brian Thrasher
Chief Financial Officer
(Principal Financial and Accounting Officer)

POWER OF ATTORNEY AND SIGNATURES

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Simon Irish and Brian Thrasher, or any of them, his or her true and lawful attorney-in-fact and agent, with full power of substitution and re-substitution, for such person and in his or her name, place and stead, in any and all capacities, to sign any or all amendments (including post-effective amendments, exhibits thereto and other documents in connection therewith) to this registration statement and any subsequent registration statement filed by the registrant pursuant to Rule 462(b) and to file the same, with all exhibits thereto, and other documents in connection therewith, with the SEC, granting unto said attorneys-in-fact and agents or any one of them full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully as to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys-in-fact and agents, or any of them, or his or her substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Simon Irish Simon Irish	Chief Executive Officer (Principal Executive Officer), Director	November 3, 2026
/s/ Brian Thrasher Brian Thrasher	Chief Financial Officer (Principal Financial and Accounting Officer)	November 3, 2026
/s/ Dr. Frederick Buckman Dr. Frederick Buckman	Director	November 3, 2026
/s/ William Johnson William Johnson	Director	November 3, 2026
/s/ Robert W. Jones Robert W. Jones	Director	November 3, 2026
/s/ Hugh MacDiarmid Hugh MacDiarmid	Director	November 3, 2026
/s/ Charles Pardee Charles Pardee	Director	November 3, 2026
/s/ Kathryn McCarthy Kathryn McCarthy	Director	November 3, 2026

Exhibit 5.1

BRYAN CAVE LEIGHTON PAISNER LLP
One Atlantic Center 14th Floor
1201 W Peachtree St NW
Atlanta GA 30309 3471
T: +1 404 572 6600
F: +1 404 572 6999
bclplaw.com

November 3, 2026

Terrestrial Energy Inc.
2730 W. Tyvola Road, Suite 100
Charlotte, NC 28217

Re: Terrestrial Energy, Inc.
Registration Statement on Form S-3

We have acted as special counsel to Terrestrial Energy Inc., a Delaware corporation (the "Company"), in connection with the filing of that certain Registration Statement on Form S-3 (the "Registration Statement") with the Securities and Exchange Commission (the "Commission") under the Securities Act of 1933, as amended (the "Act") on or about November 3, 2026. The Registration Statement relates to the offer and resale from time to time by Louis Plowden-Wardlaw (the "Selling Stockholder") of up to 2,263,805 shares of common stock, par value $0.0001 per share, of the Company (the "Common Stock"), which are issuable upon the exercise of stock options (the "Options," and such shares issuable upon exercise of the Options, the "Shares") originally granted to the Selling Stockholder under the Terrestrial Energy Inc. Amended and Restated 2014 Stock Option Plan A in connection with his prior service to the Company and its predecessors and subsequently assumed under the Terrestrial Energy Inc. Second Amended and Restated 2024 Stock Option Plan (as amended, the "Plan").

Capitalized terms used but not otherwise defined herein have the meanings ascribed to such terms in the Registration Statement.

In connection herewith, we have examined:

(i) the Registration Statement;

(ii) the Plan;

(iii) the option agreement(s) evidencing the grant of the Options to the Selling Stockholder;

(iv) the Certificate of Incorporation of the Company, as amended through March 27, 2026;

(v) the Bylaws of the Company, as amended through October 28, 2025; and

(vi) resolutions adopted by the sole stockholder of Terrestrial Energy Delaware Inc. (subsequently renamed Terrestrial Energy Inc. and now known as Terrestrial Energy Development Inc.) on April 5, 2024, and by the Board of Directors of Terrestrial Energy Inc. (now known as Terrestrial Energy Development Inc.) on October 26, 2025.

We have also examined originals or copies, certified or otherwise identified to our satisfaction, of such other corporate records, agreements and instruments of the Company, certificates of public officials and officers of the Company, and such other documents, records and instruments, and we have made such legal and factual inquiries, as we have deemed necessary or appropriate as a basis for us to render the opinions hereinafter expressed. In our examination of the foregoing, we have assumed the genuineness of all signatures, the legal competence and capacity of natural persons, the authenticity of documents submitted to us as originals and the conformity with authentic original documents of all documents submitted to us as copies or by facsimile or other means of electronic transmission, or which we obtained from the Commission's Electronic Data Gathering, Analysis and Retrieval system ("Edgar") or other sites maintained by a court or governmental authority or regulatory body and the authenticity of the originals of such latter documents. If any documents we examined in printed, word processed or similar form has been filed with the Commission on Edgar or such court or governmental authority or regulatory body, we have assumed that the document so filed is identical to the document we examined except for formatting changes. When relevant facts were not independently established, we have relied without independent investigation as to matters of fact upon statements of governmental officials and certificates and statements of appropriate representatives of the Company.

In connection herewith, we have assumed that, other than with respect to the Company, all of the documents referred to in this opinion letter have been duly authorized by, duly executed and delivered and countersigned by, and constitute the valid, binding and enforceable obligations of, all of the parties to such documents, all of the signatories to such documents have been duly authorized and all such parties are duly organized and validly existing and have the power and authority (corporate or other) to execute, deliver and perform such documents. We have further assumed that the consideration received by the Company for the Shares upon exercise of the Options shall not be less than the per share par value of the Shares.

Based upon the foregoing and in reliance thereon, and subject to the assumptions, comments, qualifications, limitations and exceptions set forth herein, we are of the opinion that:

1. The Shares have been duly authorized and, when delivered upon exercise of the Options and payment of the exercise price therefor, in accordance with the terms and conditions set forth in the Plan and the applicable option agreement(s), will be validly issued, fully paid and non-assessable.

Our opinion herein reflects only the application of the General Corporation Law of the State of Delaware. The opinions set forth herein are made as of the date hereof and are subject to, and may be limited by, future changes in factual matters, and we undertake no duty to advise you of the same. The opinions expressed herein are based upon the law in effect (and published or otherwise generally available) on the date hereof, and we assume no obligation to revise or supplement these opinions should such law be changed by legislative action, judicial decision or otherwise. In rendering our opinions, we have not considered, and hereby disclaim any opinion as to, the application or impact of any laws, cases, decisions, rules or regulations of any other jurisdiction, court or administrative agency.

We do not render any opinions except as set forth above. We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the use of our name under the caption “Legal Matters” in the prospectus filed as a part thereof. We also consent to your filing copies of this opinion letter as an exhibit to the Registration Statement with agencies of such states as you deem necessary in the course of complying with the laws of such states regarding the offering and sale of the Shares. In giving such consent, we do not thereby concede 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.

Very truly yours,

/s/ Bryan Cave Leighton Paisner LLP

Exhibit 23.1

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We hereby consent to the incorporation by reference in this Registration Statement of Terrestrial Energy Inc. (the "Company") on Form S-3 of our report dated March 30, 2026, with respect to our audits of the consolidated financial statements of the Company as of December 31, 2025 and 2024 and for the years then ended, which is included in the Company's Annual Report on Form 10-K for the year ended December 31, 2025.

We also consent to the reference to our Firm under the heading "Experts" in such Prospectus.

/s/ UHY LLP

Melville, NY
November 3, 2026

Calculation of Filing Fee Tables

S-3

Terrestrial Energy Inc. /DE/

Table 1: Newly Registered and Carry Forward Securities ☐Not Applicable

		Security Type	Security Class Title	Fee Calculation or Carry Forward Rule	Amount Registered	Proposed Maximum Offering Price Per Unit	Maximum Aggregate Offering Price	Fee Rate	Amount of Registration Fee	Carry Forward Form Type	Carry Forward File Number	Carry Forward Initial Effective Date	Filing Fee Previously Paid in Connection with Unsold Securities to be Carried Forward
Newly Registered Securities													
Fees to be Paid	1	Equity	Common Stock, par value $0.0001 per share	Other	2,263,805	$ 3.29	$ 7,447,918.45	0.000087	$ 647.97				
Fees Previously Paid													
Carry Forward Securities													
Carry Forward Securities													
				Total Offering Amounts:			$ 7,447,918.45		$ 647.97				
				Total Fees Previously Paid:					$ 0.00				
				Total Fee Offsets:					$ 0.00				
				Net Fee Due:					$ 647.97				

Offering Note

1

(1) Any additional shares of common stock of Terrestrial Energy Inc. (the "Registrant") to be issued as a result of stock dividends, stock splits or similar transactions shall be covered by this Registration Statement as provided in Rule 416(a) under the Securities Act of 1933, as amended.

(2) Calculated in accordance with Rule 457(c) under the Securities Act of 1933 solely for the purpose of calculating the registration fee, which is based on the average of the high and low market prices of the shares of common stock of the Registrant as reported on the Nasdaq Stock Market LLC on October 27, 2026, which date was within five business days prior to the filing of this Registration Statement.

(3) Represents an aggregate of 2,263,805 shares of the Registrant's common stock, par value $0.0001 per share ("Common Stock") registered for resale by the selling stockholder identified in the prospectus and issuable upon exercise of stock options awarded to him during his employment with Terrestrial Energy Development, Inc., before its business combination with the Registrant.

Table 2: Fee Offset Claims and Sources ☑Not Applicable

		Registrant or Filer Name	Form or Filing Type	File Number	Initial Filing Date	Filing Date	Fee Offset Claimed	Security Type Associated with Fee Offset Claimed	Security Title Associated with Fee Offset Claimed	Unsold Securities Associated with Fee Offset Claimed	Unsold Aggregate Offering Amount Associated with Fee Offset Claimed	Fee Paid with Fee Offset Source
Rules 457(b) and 0-11(a)(2)												
Fee Offset Claims												
Fee Offset Sources												
Rule 457(p)												
Fee Offset Claims												
Fee Offset Sources												

Table 3: Combined Prospectuses ☑Not Applicable

	Security Type	Security Class Title	Amount of Securities Previously Registered	Maximum Aggregate Offering Price of Securities Previously Registered	Form Type	File Number	Initial Effective Date