

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

POST-EFFECTIVE AMENDMENT NO. 1 TO
FORM S-1
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

NET POWER INC.
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

3620
(Primary Standard Industrial
Classification Code Number)

98-1580612
(I.R.S. Employer
Identification Number)

**320 Roney Street, Suite 200
Durham, North Carolina 27701
(919) 287-4750**

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

**Akash Patel
Chief Financial Officer
320 Roney Street, Suite 200
Durham, North Carolina 27701
(919) 287-4750**

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

Copies of all communications, including communications sent to agent for service, should be sent to:

**Matthew R. Pacey, P.C.
Lanchi D. Huynh
Kirkland & Ellis LLP
609 Main Street
Houston, Texas 77002
(713) 836-3600**

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

If 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 post-effective amendment filed pursuant to Rule 462(d) 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. (333-273183)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

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

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

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

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 or until this registration statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

EXPLANATORY NOTE

This Post-Effective Amendment No. 1 (this “Amendment”) to the Registration Statement on Form S-1 of NET Power Inc. (File No. 333-273183), initially filed on July 7, 2023 and declared effective by the Securities and Exchange Commission on September 25, 2023 (the “Registration Statement”), is being filed as an exhibit-only filing solely to file a consent of Grant Thornton LLP with respect to its report dated March 11, 2024 relating to the financial statements of NET Power Inc. contained in its Annual Report on Form 10-K for the year ended December 31, 2023, filed herewith as Exhibit 23.1 (the “Consent”). Accordingly, this Amendment consists only of the facing page, this explanatory note, Item 16 of Part II of the Registration Statement, the signature pages to the Registration Statement, and the Consent. The prospectus and the balance of Part II of the Registration Statement are unchanged hereby and have been omitted.

1

PART II — INFORMATION NOT REQUIRED IN PROSPECTUS

Item 16. Exhibits and Financial Statement Schedules.

The following exhibits are filed herewith or incorporated by reference herein:

Exhibit Number	Description
2.1+*	Business Combination Agreement, dated as of December 13, 2022, by and among Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC, Topo Buyer Co. LLC, Topo Merger Sub. LLC and NET Power, LLC (incorporated by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed with the SEC on December 14, 2022).
2.2*	First Amendment to the Business Combination Agreement, dated as of April 23, 2023, by and among Topo Buyer Co. LLC and NET Power, LLC (incorporated by reference to Exhibit 2.1 to the Company’s Current Report on Form 8-K filed with the SEC on April 24, 2023).
3.1*	Certificate of Incorporation of NET Power Inc. (incorporated by reference to Exhibit 3.1 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
3.2*	Bylaws of NET Power Inc. (incorporated by reference to Exhibit 3.2 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023)
4.1*	Warrant Agreement, dated as of June 15, 2021, by and among Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC and Continental Stock Transfer & Trust Company, as warrant agent (incorporated by reference to Exhibit 4.1 to the Company’s Current Report on Form 8-K filed with the SEC on June 21, 2021).
5.1*	Opinion of Kirkland & Ellis LLP as to the validity of shares of NET Power Inc. Class A common Stock and warrants.
10.1*	Stockholders’ Agreement, dated as of June 8, 2023, by and among Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC, Rice Acquisition Sponsor II LLC and the NET Power Holders (as defined therein) (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
10.2*	Second Amended and Restated Limited Liability Company Agreement of NET Power Operations LLC, dated as of June 8, 2023 (incorporated by reference to Exhibit 10.2 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
10.3*	Tax Receivable Agreement, dated as of June 8, 2023, by and among NET Power Inc., NET Power Operations LLC, certain equityholders of NET Power Operations LLC and the Agent (as defined therein) (incorporated by reference to Exhibit 10.3 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
10.4*	Form of Indemnification Agreement for directors and executive officers of NET Power Inc. (incorporated by reference to Exhibit 10.4 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
10.5*	NET Power Inc. 2023 Omnibus Incentive Plan (incorporated by reference to Exhibit 10.5 to the Company’s Current Report on Form 8-K filed with the SEC on June 14, 2023).
10.6*	Letter Agreement, dated June 15, 2021, among Rice Acquisition Corp. II, its officers and directors and Rice Acquisition Sponsor II LLC (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed with the SEC on June 21, 2021).
10.7*	Investment Management Trust Agreement, dated as of June 15, 2021, between Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC and Continental Stock Transfer & Trust Company (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed by the Registrant on June 21, 2021).
10.8*	Registration Rights Agreement, dated June 15, 2021, among Rice Acquisition Corp. II, Rice Acquisition Sponsor II LLC and certain other security holders named therein (incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K filed by the Registrant on June 21, 2021).
10.9*	Administrative Services Agreement, dated as of June 15, 2021, by and between Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC and Rice Acquisition Sponsor II LLC (incorporated by reference to Exhibit 10.4 to the Company’s Current Report on Form 8-K filed with the SEC on June 21, 2021).

II-1

Exhibit Number	Description
10.10*	Private Placement Warrants and Warrant Rights Purchase Agreement, dated as of June 15, 2021, by and among Rice Acquisition Corp. II, Rice Acquisition Holdings II LLC and Rice Acquisition Sponsor II LLC (incorporated by reference to Exhibit 10.5 to the Company’s Current Report on Form 8-K filed with the SEC on June 21, 2021).
10.11*	Sponsor Letter Agreement, dated as of December 13, 2022, by and among Rice Acquisition Corp. II, Rice Acquisition Sponsor II LLC, Rice Acquisition Holdings II LLC, NET Power, LLC and the members of the board of directors or management of Rice Acquisition Corp. II (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed with the SEC on December 14, 2022).
10.12*	Support Agreement, dated December 13, 2022, between Rice Acquisition Corp. II, Rice Acquisition Sponsor II LLC, NET Power, LLC and the other persons whose names appear on the signature pages thereto (incorporated by reference to Exhibit 10.2 to the Company’s Current Report on Form 8-K filed with the SEC on December 14, 2022).
10.13*	First Amendment to the Support Agreement, dated April 23, 2023, by and among Rice Acquisition Corp. II, Rice Acquisition Sponsor II LLC, NET Power, LLC and the other persons whose names appear on the signature pages thereto (incorporated by reference to Exhibit 10.2 to the Company’s Current Report on Form 8-K filed with the SEC on April 24, 2023).
10.14*	Form of Subscription Agreement, dated as of December 13, 2022, by and between Rice Acquisition Corp. II and the subscriber named therein (incorporated by reference to Exhibit 10.3 to the Company’s Current Report on Form 8-K filed with the SEC on December 14, 2022).
10.15*	Subscription Agreement, dated as of May 18, 2023, by and between Rice Acquisition Corp. II and Tillandsia, Inc. (incorporated by reference to Exhibit 10.1 to the Company’s Current Report on Form 8-K filed with the SEC on May 24, 2023).
10.16+*	Amended and Restated License Agreement, dated as of August 7, 2014, by and between NET Power, LLC and 8 Rivers Capital, LLC (incorporated by reference to Exhibit 10.12 to the Company’s Form S-4/A filed with the SEC on February 2, 2023).

10.17++*	Amended and Restated Joint Development Agreement, dated as of February 13, 2022, by and among NET Power, LLC, Nuovo Pignone International, S.r.l., Nuovo Pignone Tecnologie S.r.l., Rice Acquisition Holdings II LLC and Rice Acquisition Corp. II (incorporated by reference to Exhibit 10.13 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.18++*	License Agreement, dated as of February 3, 2022, by and between NET Power, LLC and Nuovo Pignone Tecnologie S.r.l., as amended to date (incorporated by reference to Exhibit 10.14 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.19++*	Ground Lease, dated as of April 14, 2015, by and between Air Liquide Large Industries U.S. LP and NET Power, LLC and Amendments No. One, Two, Three and Four thereto (incorporated by reference to Exhibit 10.16 to the Company's Form S-4/A filed with the SEC on April 24, 2023).
10.20++*	Product Supply and Sales Agreement, dated as of July 1, 2015, by and between Air Liquide Large Industries U.S. LP and NET Power, LLC and Amendments No. One, Two and Three thereto (incorporated by reference to Exhibit 10.17 to the Company's Form S-4/A filed with the SEC on April 24, 2023).
10.21*	Service Provider Agreement, dated as of October 1, 2021, by and between NET Power, LLC and Ron DeGregorio (incorporated by reference to Exhibit 10.17 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.22*	Profits Interest Share Award Agreement, dated as of October 1, 2021, by and between NET Power, LLC and Ron DeGregorio (incorporated by reference to Exhibit 10.18 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.23*	Amendment to the Service Provider Agreement and Profits Interest Share Agreement, dated as of April 28, 2022, by and between NET Power, LLC and Ron DeGregorio (incorporated by reference to Exhibit 10.19 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.24*	Second Amendment to the Service Provider Agreement and Profits Interest Share Agreement, dated as of December 5, 2022, by and between NET Power, LLC and Ron DeGregorio (incorporated by reference to Exhibit 10.20 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.25*	Side Letter, dated as of December 2, 2022, by and between NET Power, LLC and Ron DeGregorio (incorporated by reference to Exhibit 10.21 to the Company's Form S-4/A filed with the SEC on February 2, 2023).

II-2

Exhibit Number	Description
10.26*	Service Provider Agreement, dated as of October 4, 2021, by and between NET Power, LLC and Akash Patel (incorporated by reference to Exhibit 10.22 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.27*	Profits Interest Share Award Agreement, dated as of October 4, 2021, by and between NET Power, LLC and Akash Patel (incorporated by reference to Exhibit 10.23 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.28*	Amendment to the Service Provider Agreement and Profits Interest Share Agreement, dated as of April 27, 2022, by and between NET Power, LLC and Akash Patel (incorporated by reference to Exhibit 10.24 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.29*	Service Provider Agreement, dated as of March 31, 2022, by and between NET Power, LLC and Brian Allen (incorporated by reference to Exhibit 10.25 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.30*	Profits Interest Share Award Agreement, dated as of March 31, 2022, by and between NET Power, LLC and Brian Allen (incorporated by reference to Exhibit 10.26 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
10.31*	Amendment to the Service Provider Agreement and Profits Interest Share Agreement, dated as of May 2, 2022, by and between NET Power, LLC and Brian Allen (incorporated by reference to Exhibit 10.27 to the Company's Form S-4/A filed with the SEC on February 2, 2023).
21.1*	Subsidiaries of the Company.
23.1*	Consent of Grant Thornton LLP (with respect to NET Power, LLC consolidated financial statements).
23.2*	Consent of WithumSmith + Brown, PC (with respect to NET Power Inc. (formerly known as Rice Acquisition Corp. II) financial statements).
23.3*	Consent of Kirkland & Ellis LLP (included as part of Exhibit 5.1).
23.4	Consent of Grant Thornton LLP (with respect to NET Power Inc. consolidated financial statements).
24.1*	Power of Attorney (contained on the signature page of the registration statement filed on July 7, 2023).
101.INS	XBRL Instance Document – the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (embedded within the Inline XBRL document and contained in Exhibit 101).
107*	Filing Fee Table.

* Previously filed.

+ Certain schedules or similar attachments to this exhibit have been omitted pursuant to Item 601(a)(5) of Regulation S-K. The Company agrees to provide a copy of any omitted schedule or similar attachment to the SEC upon request.

++ Certain provisions or terms of this exhibit have been omitted pursuant to Regulation S-K Item 601(b)(10)(iv). Redactions and omissions are designated with brackets containing asterisks. The Company agrees to provide on a supplement basis an unredacted copy of the exhibit and its materiality and privacy or confidentiality analyses to the SEC upon request.

II-3

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Durham, State of North Carolina, on March 13, 2024.

NET POWER INC.

By: /s/ Daniel J. Rice, IV

Name: Daniel J. Rice, IV

Title: Chief Executive Officer and Director

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

Signature	Title	Date
<u>/s/ Daniel J. Rice, IV</u> Daniel J. Rice, IV	Chief Executive Officer and Director (Principal Executive Officer)	March 13, 2024
<u>/s/ Akash Patel</u> Akash Patel	Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)	March 13, 2024
<u>*</u> Ralph Alexander	Director	March 13, 2024
<u>*</u> Peter J. (Jeff) Bennett	Director	March 13, 2024
<u>*</u> J. Kyle Derham	Director	March 13, 2024
<u>*</u> Frederick A. Forthuber	Director	March 13, 2024
<u>*</u> Joseph T. Kelliher	Director	March 13, 2024
<u>*</u> Carol Peterson	Director	March 13, 2024
<u>*</u> Brad Pollack	Director	March 13, 2024
<u>*</u> Eunkyung Sung	Director	March 13, 2024
<u>*</u> Alejandra Veltmann	Director	March 13, 2024

* The undersigned, by signing his name hereto, signs and executes this Post-Effective Amendment No. 1 to the Registration Statement pursuant to the Powers of Attorney executed by the above-named signatories and previously filed with the Securities and Exchange Commission on July 7, 2023.

/s/ Daniel J. Rice, IV
Daniel J. Rice, IV
Attorney-in-fact

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated March 11, 2024, with respect to the consolidated financial statements of NET Power Inc. on Form 10-K for the year ended December 31, 2023, which are included in a supplement to the prospectus that is part of the Registration Statement on Form S-1 (No. 333-273183) (the "Prospectus"). We consent to the use of the aforementioned report in the Prospectus, and to the use of our name as it appears under the caption "Experts."

/s/ GRANT THORNTON LLP

Raleigh, North Carolina
March 13, 2024
