

PROSPECTUS

LanzaTech

Up to \$100,000,000 Common Stock

We have entered into an At Market Issuance Sale Agreement, dated May 9, 2024 (the “Sales Agreement”) and a Terms Agreement (the “Terms Agreement”), with B. Riley Securities, Inc. (“B. Riley Securities”), relating to the sale of shares of our common stock, par value \$0.0001 per share, offered by this prospectus. We may offer and sell shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time through B. Riley Securities, acting as our sales agent or principal.

Our common stock and our warrants are listed on the Nasdaq Capital Market (“Nasdaq”) under the symbol “LNZA” and “LNZAW”, respectively. On October 4, 2024, the last reported sales price of our common stock was \$2.04 per share.

Sales of our common stock, if any, under this prospectus supplement may be made by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended (the “Securities Act”). B. Riley Securities will act as our sales agent in connection with agency transactions on a commercially reasonable efforts basis consistent with its normal trading and sales practices. In addition, B. Riley Securities will act as principal in connection with any principal transactions. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

B. Riley Securities will be entitled to a commission in an amount equal to (i) 3.0% of the gross proceeds per share sold under the Sales Agreement and (ii) equal to 5.0% of the purchase price per share sold in principal transactions, under the Terms Agreement. See “Plan of Distribution” for additional information regarding compensation to be paid to B. Riley Securities. In connection with the sale of our common stock on our behalf, B. Riley Securities will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation of B. Riley Securities will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to B. Riley Securities against certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended (the “Exchange Act”).

We are incorporated in Delaware and our headquarters are in Skokie, Illinois. We are not a company that was formed under the laws of the People’s Republic of China. However, we have business operations in China, several strategic investors located in China, including Sinopec Capital Co., Ltd. (“Sinopec”), and a core team of technical, business and administrative professionals at our office in Shanghai, which support the ongoing operations and further growth of the business in China. We also hold a minority ownership stake in Beijing Shougang LanzaTech Technology Co., Ltd. (the “Shougang Joint Venture”). We license our technology in China to the Shougang Joint Venture. Entities in which the Shougang Joint Venture holds a controlling interest currently produce low carbon ethanol at four commercial scale facilities using our process technology, which, in addition to its use as fuel, is transported and processed for use in consumer products. For more information on the Shougang Joint Venture, see the section entitled “Business Overview — Key Collaboration Agreements — Shougang Joint Venture” included in Item 1 of our Annual Report on Form 10-K for the year ended December 31, 2023, and any similar section contained in the applicable prospectus supplement and in any free writing prospectus we have authorized for use in connection with a specific offering, and under similar headings in the documents incorporated by reference into this prospectus.

We have determined the Shougang Joint Venture to be a variable interest entity (“VIE”) for which we are not the primary beneficiary. This VIE structure was implemented to effectuate the intellectual property licensing arrangement between us and the Shougang Joint Venture and is not used to provide investors with exposure to foreign investment in China-based companies where Chinese law prohibits direct foreign investment in the operating companies. We had previously determined that we were able to exercise significant influence, but no control, over the Shougang Joint Venture through our equity holdings in the Shougang Joint Venture, our representation on the VIE’s board of directors and participation in the policy-making process. Although we have the right to appoint and elect, and currently have appointed and elected, one director to the Shougang Joint Venture’s board of directors, the agreements between us, the Shougang Joint Venture and Sinopec do not provide us with the power to direct the activities that are most significant to the economic performance of the Shougang Joint Venture. Therefore we do not consolidate the Shougang Joint Venture in our financial statements. On September 30, 2022, we determined that we no longer had significant influence over the operating and financial policies of the Shougang Joint Venture due to the significant decrease in the Shougang Joint Venture’s technological dependence on us.

Although we are incorporated and headquartered in the United States, we may still be subject to certain PRC laws due to our business operations in China. We face risks and uncertainties associated with complex and evolving PRC laws and regulations and as to whether and how recent PRC government statements and regulatory developments, such as those relating to cross-border data security, anti-monopoly concerns and VIEs, would apply to us or our operations. Any application of these statements or regulatory actions to us or our operations in the future, including a limitation on or disallowance of the VIE structure by Chinese regulatory authorities, could result in a material change in our operations or in the value of the shares of our common stock. For more information, see the risks and uncertainties described under the caption “Risk Factors” beginning on page 13 of this prospectus and any similar section contained in the applicable prospectus supplement and in any free writing prospectus we have authorized for use in connection with a specific offering, and under similar headings in the documents incorporated by reference into this prospectus.

Pursuant to our license agreement with the Shougang Joint Venture, the Shougang Joint Venture transfers required payments by wire transfer to LanzaTech, Inc., our wholly owned subsidiary. As of the date of this prospectus, transfers of cash or other types of assets have been made between the Shougang Joint Venture and LanzaTech and its subsidiaries. The payments made between the Shougang Joint Venture and LanzaTech, Inc. have been in the ordinary course of business and have consisted of payments from LanzaTech, Inc. to the Shougang Joint Venture for the sale of ethanol and payments from the Shougang Joint Venture to LanzaTech, Inc. for sales of microbes, media, consumables and equipment. Payments from LanzaTech, Inc. to the Shougang Joint Venture were approximately \$1.9 million and \$1.1 million in the fiscal years ended December 31, 2023 and 2022, respectively, and \$1.4 million during the six months ended June 30, 2024. No payments were made from LanzaTech, Inc. to the Shougang Joint Venture in the fiscal year ended December 31, 2021. Payments from the Shougang Joint Venture to LanzaTech, Inc. were approximately \$0.6 million and \$0.3 million in the fiscal years ended December 31, 2023 and 2022, respectively, and \$0.3 million during the six months ended June 30, 2024. We did not receive any payments from the Shougang Joint Venture in the fiscal year ended December 31, 2021. We have not in the past and do not intend in the future to distribute to our stockholders any amounts that we receive from the Shougang Joint Venture. For more information, see our audited financial statements incorporated by reference in this prospectus.

Our auditor, Deloitte & Touche LLP, is not headquartered in mainland China or Hong Kong and therefore is not subject to the determinations announced by the Public Company Accounting Oversight Board (the “PCAOB”) on December 16, 2021 regarding the PCAOB’s inability to inspect or investigate registered public accounting firms headquartered in mainland China or Hong Kong. The Holding Foreign Companies Accountable Act and related regulations are not applicable to us.

Investing in our securities involves a high degree of risk. Before investing in our securities, you should carefully consider the risks and uncertainties described under the caption “Risk Factors” beginning on page 13 of this prospectus and any similar section contained in the applicable prospectus supplement and in any free writing prospectus we have authorized for use in connection with a specific offering, and under similar headings in the documents incorporated by reference into this prospectus.

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

B. Riley Securities

The date of this prospectus is November 1, 2024.

TABLE OF CONTENTS

<u>ABOUT THIS PROSPECTUS</u>	<u>1</u>
<u>CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS</u>	<u>3</u>
<u>MARKET, INDUSTRY AND OTHER DATA</u>	<u>5</u>
<u>WHERE YOU CAN FIND MORE INFORMATION</u>	<u>5</u>
<u>INCORPORATION BY REFERENCE</u>	<u>5</u>
<u>THE COMPANY</u>	<u>7</u>
<u>THE OFFERING</u>	<u>11</u>
<u>RISK FACTORS</u>	<u>13</u>
<u>USE OF PROCEEDS</u>	<u>15</u>
<u>DESCRIPTION OF COMMON STOCK</u>	<u>16</u>
<u>DILUTION</u>	<u>20</u>
<u>PLAN OF DISTRIBUTION</u>	<u>22</u>
<u>LEGAL MATTERS</u>	<u>24</u>
<u>EXPERTS</u>	<u>24</u>

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 Securities Act. Under this shelf registration process, we may offer and sell shares of our common stock having an aggregate offering price of up to \$100,000,000 from time to time under this prospectus at prices and on terms to be determined by market conditions at the time of the offering.

Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus and the information incorporated by reference as described under the heading “*Where You Can Find More Information.*” These documents contain important information that you should consider when making your investment decision.

This prospectus describes the terms of this offering of common stock and also adds to and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the SEC, before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a document incorporated by reference into this prospectus) the statement in the document having the later date modifies or supersedes the earlier statement. The information contained in this prospectus or any free writing prospectus, or incorporated by reference herein or therein, is accurate only as of the respective dates thereof, regardless of the time of delivery of this prospectus or of any sale of our shares of common stock. Our business, financial condition, results of operations and prospects may have changed since those dates.

Unless the context indicates otherwise, references in this prospectus to the “Company,” “LanzaTech,” “we,” “us,” “our” and similar terms refer to LanzaTech Global, Inc. (formerly known as AMCI Acquisition Corp. II) and its consolidated subsidiaries (including LanzaTech NZ, Inc.). References to “PRC” or “China” refer to the People’s Republic of China, which, solely for the purpose of this prospectus, exclude Taiwan and the special administrative regions of Hong Kong and Macau. We have no operations in Taiwan, Hong Kong, or Macau; however, the legal and operational risks associated with operating in China that are described in this prospectus also apply to any operations in Hong Kong and Macau.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

The registration statement of which this prospectus forms a part, including the exhibits to the registration statement, contains additional information about us and the securities offered under this prospectus. The registration statement can be obtained from the SEC’s website, www.sec.gov. Copies of information filed by us with the SEC are also available on our website at <https://lanzatech.com>. The reference to our website is not intended to be an active link and the information on, or that can be accessed through, our website is not, and you must not consider the information to be, a part of this prospectus or any other filings we make with the SEC.

Neither we nor B. Riley Securities have authorized anyone to provide you with information that is different from or in addition to the information contained in this prospectus or any free writing prospectus. Accordingly, neither we nor B. Riley Securities takes any responsibility for, or can provide any assurance as to the reliability of, any information that others may provide. You should not assume that the information in this prospectus or any free writing prospectus that we have prepared is accurate as of any date other than the date of those documents, and that any information in documents that we have incorporated by reference is accurate only as of the date of such document, regardless of the time of delivery of this prospectus or any sale of a security. Our business, financial condition, results of operations and prospects may have changed since those dates.

The distribution of this prospectus and any applicable prospectus supplement and the offering of the securities in certain jurisdictions may be restricted by law. Persons who obtain this prospectus and any applicable prospectus supplement should inform themselves about, and observe, any such restrictions. This prospectus does not constitute, and may not be used in connection with, an offer or solicitation by anyone in any jurisdiction in which such offer or solicitation is not permitted or in which the person making such offer or solicitation is not qualified to do so or to any person to whom it is unlawful to make such offer or solicitation.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains statements that are forward-looking and as such are not historical facts. This includes, without limitation, statements regarding the financial position, business strategy and the plans and objectives of management for future operations. These statements constitute projections, forecasts and forward-looking statements, and are not guarantees of performance. Such statements can be identified by the fact that they do not relate strictly to historical or current facts. When used in this prospectus, words such as “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “might,” “plan,” “possible,” “potential,” “predict,” “project,” “should,” “strive,” “would” and similar expressions may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. When we discuss our strategies or plans, we are making projections, forecasts or forward-looking statements. Such statements are based on the beliefs of, as well as assumptions made by and information currently available to, LanzaTech’s management.

Forward-looking statements may include, for example, statements about:

- our anticipated growth rate and market opportunities;
- our ability to maintain the listing of our securities on the Nasdaq Stock Market;
- the potential liquidity and trading of our securities;
- our ability to resolve material litigation proceedings in our favor;
- our ability to raise substantial additional financing in the future to fund our operations and complete the development and commercialization of our process technologies;
- our assessment of the competitive landscape;
- our ability to comply with laws and regulations applicable to our business;
- our ability to enter into, successfully maintain and manage relationships with industry partners;
- the availability of governmental programs designed to incentivize the production and consumption of low-carbon fuels and carbon capture and utilization;
- our ability to adequately protect our intellectual property rights;
- our ability to attract, retain and motivate qualified personnel and to manage our growth effectively;
- our future financial performance, growth, costs and expenses, availability of resources and capital requirements;
- our ability to increase our revenue from engineering services, sales of equipment packages and sales of CarbonSmart products and to improve our operating results;
- our ability to increase our ownership stake in LanzaJet, Inc. through the sublicensing of LanzaJet, Inc.’s technology;
- our ability to collaborate with our partners and progress projects into the construction phase; and
- our ability to implement and maintain effective internal controls.

We caution you that the foregoing list may not contain all of the forward-looking statements made in this prospectus.

These forward-looking statements are only predictions based on our current expectations and projections about future events and are subject to a number of risks, uncertainties and assumptions, including those described in “Risk Factors” and elsewhere in this prospectus. Moreover, we operate in a competitive industry, and new risks emerge from time to time. It is not possible for the management of LanzaTech to predict all risks, nor can we assess the

impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this prospectus may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements in this prospectus.

The forward-looking statements included in this prospectus are made only as of the date hereof. You should not rely upon forward-looking statements as predictions of future events. Although we believe that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. LanzaTech does not undertake any obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in expectations, except as required by law.

You should read this prospectus, and the documents that have been filed as exhibits to the registration statement of which this prospectus forms a part, and any accompanying prospectus supplement with the understanding that the actual future results, levels of activity, performance, events and circumstances of LanzaTech may be materially different from what is expected.

MARKET, INDUSTRY AND OTHER DATA

Certain information contained in this document relates to or is based on studies, publications, surveys and other data obtained from third-party sources and LanzaTech's own internal estimates and research. While we believe these third-party sources to be reliable as of the date of this prospectus, we have not independently verified the market and industry data contained in this prospectus or the underlying assumptions relied on therein. Finally, while we believe our own internal research is reliable, such research has not been verified by any independent source.

WHERE YOU CAN FIND MORE INFORMATION

We have filed with the SEC a registration statement on Form S-3 under the Securities Act with respect to the securities being offered by this prospectus. This prospectus, which constitutes part of the registration statement, does not contain all of the information in the registration statement and its exhibits. For further information with respect to us and our securities offered by this prospectus, we refer you to the registration statement and its exhibits. Statements contained in this prospectus as to the contents of any contract or any other document referred to are not necessarily complete, and in each instance, we refer you to the copy of the contract or other document filed as an exhibit to the registration statement. Each of these statements is qualified in all respects by this reference. You can read our SEC filings, including the registration statement, over the internet at the SEC's website at www.sec.gov.

We are subject to the information reporting requirements of the Exchange Act, and we file reports, proxy statements and other information with the SEC. These reports, proxy statements and other information will be available for review at the SEC's website at www.sec.gov. We also maintain a website at www.lanzatech.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. LanzaTech's website and the information contained on, or that can be accessed through, such website are not deemed to be incorporated by reference in, and are not considered part of, this prospectus.

INCORPORATION BY REFERENCE

The SEC allows us to "incorporate by reference" into this prospectus the information in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be a part of this prospectus and should be read with the same care. When we update the information contained in documents that have been incorporated by reference by making future filings with the SEC, the information incorporated by reference into this prospectus is considered to be automatically updated and superseded. In other words, in all cases, if you are considering whether to rely on information contained in this prospectus or information incorporated by reference into this prospectus, you should rely on the information contained in the document that was filed later. We incorporate by reference (other than any information furnished to, rather than filed with, the SEC, unless expressly stated otherwise therein) the documents listed below (File No. 001-40282 unless otherwise stated), which are considered to be a part of this prospectus:

- our Annual Report on [Form 10-K](#) for the year ended December 31, 2023, filed with the SEC on February 29, 2024 (including the portions of our Definitive Proxy Statement on [Schedule 14A](#), filed with the SEC on April 29, 2024, incorporated by reference therein);
- our Quarterly Report on [Form 10-Q](#) for the quarter ended March 31, 2024, filed with the SEC on May 9, 2024;
- our Quarterly Report on [Form 10-Q](#) for the quarter ended June 30, 2024, filed with the SEC on August 8, 2024;
- our Current Reports on Form 8-K filed with the SEC on [February 28, 2024](#) (excluding Item 2.02 and Exhibits 99.1 and 99.2), [March 25, 2024](#), [April 29, 2024](#), [May 9, 2024](#) (excluding Item 2.02 and Exhibits 99.1 and 99.2), [June 20, 2024](#), [July 1, 2024](#), [July 26, 2024](#), and [August 8, 2024](#) (second filed), [October 1, 2024](#), [October 8, 2024](#), [October 10, 2024](#) (excluding Item 7.01), [October 22, 2024](#) and [October 31, 2024](#) and

- the description of our common stock contained in [Exhibit 4.1](#) of our Quarterly Report on Form 10-Q for the quarter ended March 31, 2024, filed with the SEC on May 9, 2024.

All reports and other documents we subsequently file with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act until our offering is completed, including all such reports and other documents filed with the SEC after the date of the initial filing of the registration statement of which this prospectus forms a part and prior to the effectiveness of such registration statement, will also be incorporated by reference into this prospectus and deemed to be part hereof (other than any information furnished to, rather than filed with, the SEC, unless expressly stated otherwise therein). The information contained in any such filing will be deemed to be a part of this prospectus commencing on the date on which the document is filed.

Any documents incorporated by reference into this prospectus are available without charge to you, upon written request by contacting our Investor Relations department at Investor Relations, LanzaTech Global, Inc., 8045 Lamon Avenue, Suite 400, Skokie, Illinois 60077.

THE COMPANY

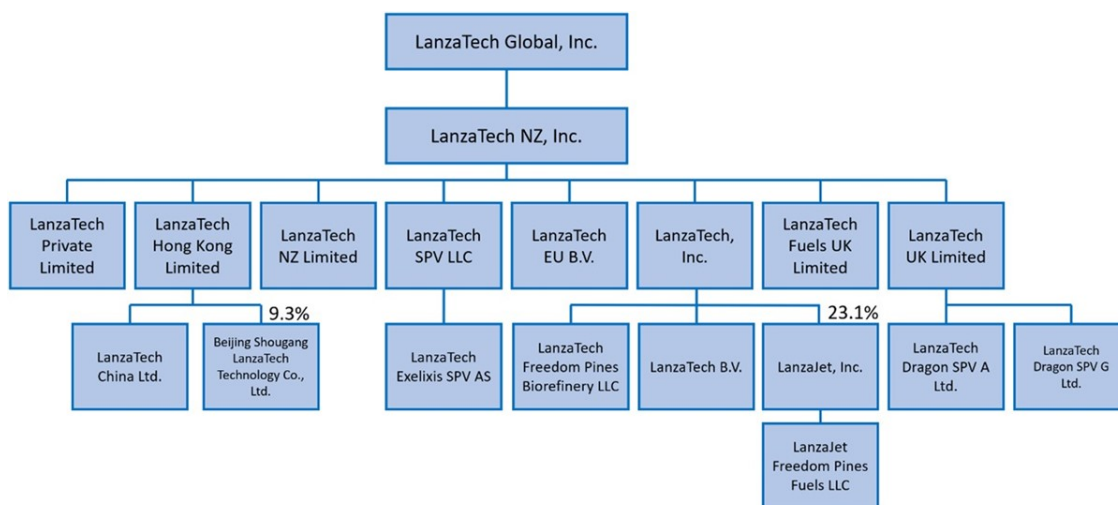
LanzaTech is a nature-based carbon refining company that transforms waste carbon into the chemical building blocks for consumer goods such as sustainable fuels, fabrics, and packaging that people use in their daily lives. Using LanzaTech's process technology, LanzaTech's partners started up the world's first commercial carbon refining plant in 2018 in China. Since then, LanzaTech's partners in China have started up an additional three commercial plants operating in China, one in April 2021, another in September 2022, and the last one in June 2023. Additionally, LanzaTech's partners have started up a commercial scale plant in India in September 2023 and in Belgium in November 2023. LanzaTech has numerous projects under development and in the pipeline globally. LanzaTech's technology platform is designed to use a variety of waste feedstocks, from waste industrial gases to biomass residues and municipal solid waste. LanzaTech's technology platform is designed to capitalize on the demand for sustainable fuels and chemicals, which can be used in multiple sectors such as aviation, automotive, textiles, home goods, consumer goods and others, to address the growing preference among major companies for environmentally conscious products and manufacturing processes.

LanzaTech is incorporated in Delaware and its headquarters are in Skokie, Illinois. LanzaTech is not a company that was formed under the laws of the PRC. However, LanzaTech has business operations in China, several strategic investors located in China, including Sinopec, and a core team of technical, business and administrative professionals at a LanzaTech office in Shanghai, which support the ongoing operations and further growth of the business in China. LanzaTech also holds a minority ownership stake in the Shougang Joint Venture. LanzaTech licenses its technology in China to the Shougang Joint Venture. Entities in which the Shougang Joint Venture holds a controlling interest currently produce low carbon ethanol at three commercial scale facilities using LanzaTech's process technology, which, in addition to its use as fuel, is transported and processed for use in consumer products. For more information on the Shougang Joint Venture, see the section entitled "*Business Overview — Key Collaboration Agreements — Shougang Joint Venture*" included in Item 1 of our Annual Report on Form 10-K for the year ended December 31, 2023, and the corresponding sections of any prospectus supplement.

LanzaTech has determined the Shougang Joint Venture to be a VIE for which LanzaTech is not the primary beneficiary. LanzaTech holds its equity interest in the Shougang Joint Venture through its subsidiary, LanzaTech Hong Kong Limited, a limited liability company organized under the laws of Hong Kong. LanzaTech Hong Kong Limited is not a wholly foreign-owned enterprise ("WFOE") organized under the laws of the PRC. This VIE structure was implemented to effectuate the intellectual property licensing arrangement between LanzaTech and the Shougang Joint Venture and is not used to provide investors with exposure to foreign investment in China-based companies where Chinese law prohibits direct foreign investment in the operating companies.

LanzaTech also has a subsidiary, LanzaTech China Limited, which is a WFOE organized under the laws of the PRC. This subsidiary employs the professionals that work in LanzaTech's office in Shanghai. LanzaTech China Limited does not hold an equity interest in the Shougang Joint Venture, or in any other VIE in China.

The following chart illustrates the organizational structure of LanzaTech and its subsidiaries as of the date of this prospectus:



LanzaTech has entered into a license agreement with the Shougang Joint Venture and a letter agreement with the Shougang Joint Venture and Sinopec. Although LanzaTech has the right to appoint and elect, and currently has appointed and elected, one director to the Shougang Joint Venture’s board of directors, the agreements between LanzaTech, the Shougang Joint Venture and Sinopec do not provide LanzaTech with the power to direct the activities that are most significant to the economic performance of the Shougang Joint Venture. Therefore, LanzaTech does not consolidate the Shougang Joint Venture in its financial statements. LanzaTech may incur substantial costs to enforce the terms of the agreements. LanzaTech may also face challenges enforcing its contractual arrangements with the Shougang Joint Venture due to legal uncertainties and jurisdictional limits.

Although LanzaTech is incorporated and headquartered in the United States, LanzaTech may still be subject to certain PRC laws due to its business operations in China. LanzaTech faces risks and uncertainties associated with the complex and evolving PRC laws and regulations and as to whether and how the recent PRC government statements and regulatory developments, such as those relating to cross-border data security, anti-monopoly concerns and VIEs, would apply to LanzaTech and its operations. Any application of these statements or regulatory actions to LanzaTech and its operations in the future, including a limitation on or disallowance of the VIE structure by Chinese regulatory authorities, could result in a material change in LanzaTech’s operations and could result in a material change in the value of the shares of the common stock.

If (i) LanzaTech does not receive or maintain any permission or approval required of it, (ii) LanzaTech inadvertently concluded that certain permissions or approvals have been acquired or are not required, or (iii) applicable laws, regulations, or interpretations thereof change and LanzaTech becomes subject to the requirement of additional permissions or approvals in the future, LanzaTech may have to expend significant time and costs to procure them. If LanzaTech is unable to do so, on commercially reasonable terms, in a timely manner or otherwise, LanzaTech may become subject to sanctions imposed by the PRC regulatory authorities, which could include fines and penalties, proceedings against LanzaTech, and other forms of sanctions, and LanzaTech’s business, reputation, financial condition, and results of operations may be materially and adversely affected. For more information, see the risks and uncertainties described under the caption “[Risk Factors](#)” beginning on page 13 of this prospectus and any similar section contained in the applicable prospectus supplement and in any free writing prospectus we have authorized for use in connection with a specific offering, and under similar headings in the documents incorporated by reference into this prospectus.

Pursuant to LanzaTech’s license agreement with the Shougang Joint Venture, the Shougang Joint Venture transfers required payments by wire transfer to LanzaTech, Inc., a wholly owned subsidiary of LanzaTech. As of the

date of this prospectus, transfers of cash or other types of assets have been made between the Shougang Joint Venture and LanzaTech and its subsidiaries. The payments made between the Shougang Joint Venture and LanzaTech, Inc. have been in the ordinary course of business and have consisted of payments from LanzaTech, Inc. to the Shougang Joint Venture for the sale of ethanol and payments from the Shougang Joint Venture to LanzaTech, Inc. for sales of microbes, media, consumables and equipment. Payments from LanzaTech, Inc. to the Shougang Joint Venture were approximately \$1.9 million and \$1.1 million in the fiscal years ended December 31, 2023 and 2022, respectively, and \$1.4 million during the six months ended June 30, 2024. No payments were made from LanzaTech, Inc. to the Shougang Joint Venture in the fiscal year ended December 31, 2021. Payments from the Shougang Joint Venture to LanzaTech, Inc. were approximately \$0.6 million and \$0.3 million in the fiscal years ended December 31, 2023 and 2022, respectively, and \$0.3 million during the six months ended June 30, 2024. We did not receive any payments from the Shougang Joint Venture in the fiscal year ended December 31, 2021. LanzaTech has not in the past and does not intend in the future to distribute to its stockholders any amounts that it receives from the Shougang Joint Venture. For more information, see the audited financial statements of LanzaTech incorporated by reference in this prospectus.

There are no restrictions or limitations on

- foreign exchange;
- LanzaTech's ability to transfer cash between entities, across borders, or to U.S. investors;
- LanzaTech's ability to distribute earnings from the company, including its subsidiaries, to the holding company or U.S. investors; or
- LanzaTech's ability to settle amounts owed under agreements with the Shougang Joint Venture.

LanzaTech's auditor, Deloitte & Touche LLP, is not headquartered in mainland China or Hong Kong and therefore is not subject to the determinations announced by the PCAOB on December 16, 2021 regarding the PCAOB's inability to inspect or investigate registered public accounting firms headquartered in mainland China or Hong Kong. The Holding Foreign Companies Accountable Act and related regulations are not applicable to LanzaTech.

Additional information about us and our subsidiaries is included in documents incorporated by reference in this prospectus. See "*Where You Can Find More Information*" and "*Incorporation by Reference*."

Business Combination

On February 8, 2023 (the "Closing Date"), LanzaTech NZ, Inc. ("Legacy LanzaTech") and AMCI Acquisition Corp. II ("AMCI") consummated a business combination pursuant to that certain Merger Agreement dated as of March 8, 2022, as amended on December 7, 2022, by and among Legacy LanzaTech, AMCI and AMCI Merger Sub, Inc. ("Merger Sub"). As contemplated by the Merger Agreement, Merger Sub merged with and into Legacy LanzaTech, with Legacy LanzaTech continuing as the surviving corporation and as a wholly owned subsidiary of AMCI.

Corporate Information

We were incorporated in Delaware on January 28, 2021, under the name AMCI Acquisition Corp. II, in order to effectuate a merger, capital stock exchange, asset acquisition, stock purchase, reorganization or similar business combination with one or more businesses or entities. AMCI completed its initial public offering on August 6, 2021. On February 8, 2023, AMCI and Legacy LanzaTech consummated the transactions contemplated by the Merger Agreement. On the Closing Date, AMCI changed its name to LanzaTech Global, Inc.

Our common stock is traded on Nasdaq under the symbol "LNZA." The mailing address of our principal executive office is 8045 Lamont Avenue, Suite 400, Skokie, Illinois 60077, and our telephone number is (847) 324-2400. Our website address is <https://lanzatech.com>. The information contained in, or that can be accessed through, our website is not part of this prospectus. We make available free of charge on our website our annual,

quarterly and current reports, including amendments to such reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC.

THE OFFERING

Common stock to be offered by us	Shares of our common stock having an aggregate offering price of up to \$100,000,000.
Common stock to be outstanding after this offering	Up to 246,784,676 (assuming the issuance of up to 49,019,608 shares of our common stock based on an assumed sales price of \$2.04 per share, which is the closing price of our common stock on Nasdaq on October 4, 2024). The actual number of shares issued will vary depending on the sales price under this offering.
Plan of Distribution	“At-the-market offering” that may be made from time to time through or to B. Riley Securities, as sales agent or principal. See “ <i>Plan of Distribution</i> ” on page 22 of this prospectus.
Use of Proceeds	We intend to use the net proceeds from this offering for general corporate purposes. See “ <i>Use of Proceeds</i> ” on page 15 of this prospectus.
Risk Factors	Investing in our common stock involves a high degree of risk. See “ <i>Risk Factors</i> ” beginning on page 13 of this prospectus and other information included in this prospectus and the documents incorporated by reference in this prospectus for a discussion of factors you should carefully consider before deciding to invest in shares of our common stock.
Nasdaq Ticker Symbol	The common stock and Public Warrants are listed on Nasdaq under “LNZA” and “LNZAW”, respectively.

The number of shares of common stock that will be outstanding after this offering is based on 197,765,067 shares of common stock outstanding as of June 30, 2024, and excludes the following:

- 4,774,276 shares of common stock that are issuable upon the exercise of private placement warrants (the “Private Placement Warrants”) originally issued in a private placement to AMCI Sponsor II LLC (the “Sponsor”) in connection with the initial public offering (“IPO”) of AMCI and upon the conversion of certain working capital loans of the Sponsor, at a price of \$1.00 per warrant;
- 7,499,924 shares of common stock that are issuable upon the exercise of public warrants (the “Public Warrants” and, together with the Private Placement Warrants, the “Warrants”) originally issued in connection with the AMCI IPO as units of AMCI at a price of \$10.00 per unit, with each unit consisting of one share of AMCI’s Class A common stock and one-half of one warrant;
- 5,000,000 shares of common stock that are issuable upon the conversion of that certain Simple Agreement for Future Equity between BGTF LT Aggregator LP (“Brookfield”) and LanzaTech NZ, Inc., dated October 3, 2022 (the “Brookfield SAFE”) at the equivalent to a price of \$10.00 per share;
- 300,000 shares of common stock that are issuable under a warrant held by ArcelorMittal, dated December 8, 2021 (the “AM Warrant”) at the equivalent to a price of \$10.00 per share;
- 4,083,486 shares of common stock issuable upon the exercise of the warrants issued to certain selling stockholders pursuant to the Forward Purchase Agreement (the “Shortfall Warrants”);
- 19,072,207 shares of common stock issuable upon the exercise of options outstanding as of June 30, 2024, at a weighted average exercise price of \$2.13 per share of Common Stock (the “Options”)
- 4,139,726 shares of common stock issuable upon the vesting of restricted stock units outstanding as of June 30, 2024 (the “RSUs”)
- 3,746,205 shares of common stock issuable upon the vesting of performance share units outstanding as of June 30, 2024 (the “PSUs” and together with the Warrants, the AM Warrant, the Brookfield SAFE, the Shortfall Warrants, the Options and the RSUs, the “Convertible Securities”);

- 96,153,847 shares of common stock reserved for issuance upon conversion of outstanding convertible notes (the “Convertible Notes”) we issued in a private placement pursuant to a Convertible Note Purchase Agreement, dated August 5, 2024, between us and an accredited investor; and
- 13,532,919 shares of common stock reserved for future issuance under our long-term incentive plan.

In addition, unless we specifically state otherwise, all information in this prospectus assumes no exercise of outstanding options or warrants subsequent to June 30, 2024.

RISK FACTORS

An investment in our common stock involves a high degree of risk. Our business, financial condition and results of operations could be materially and adversely affected by any of these risks. If any of these risks occur, the value of our common stock may decline and you may lose all or part of your investment. Before investing in our common stock, you should consider carefully the risk factors set forth in this prospectus and contained in any free writing prospectus with respect to this offering filed by us with the SEC, along with the risk factors described in “Item 1A. Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2023, as updated by our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2024 and June 30, 2024 and other filings we have made and will make with the SEC incorporated by reference into this prospectus.

Risks Related to This Offering

Management will have broad discretion over the use of the proceeds from this offering, and may not use the proceeds effectively.

Because we have not designated the amount of net proceeds from this offering to be used for any particular purpose, our management will have broad discretion as to the application of the net proceeds from this offering and could use them for purposes other than those contemplated at the time of the offering. Our management may use the net proceeds for corporate purposes that may not improve our financial condition or market value. Pending use, we may invest any net proceeds from this offering in a manner that does not produce income or loses value. Please see the section entitled “Use of Proceeds” on page 15 of this prospectus for further information.

You may experience immediate dilution in the net tangible book value per share of the common stock you purchase.

The shares sold in this offering will be sold from time to time at various prices. The price per share of our common stock being offered may, at the time of sale, be higher than the net tangible book value per share of our common stock outstanding prior to this offering. After giving effect to the assumed sale of shares of our common stock in the aggregate amount of \$100,000,000 at an assumed public offering price of \$2.04 per share, the closing price of our common stock on Nasdaq on October 4, 2024, and after deducting commissions and estimated offering expenses, our as adjusted net tangible book value as of June 30, 2024 would have been \$163.6 million, or \$0.66 per share. This would represent an immediate increase in net tangible book value of \$0.32 per share to our existing stockholders and an immediate decrease in as adjusted net tangible book value of \$1.38 per share to purchasers of our common stock in this offering. Please see the section entitled “Dilution” on page 20 of this prospectus. Notwithstanding this illustration, because the price per share of our common stock being offered may, at the time of sale, be higher than the net tangible book value per share of our common stock outstanding prior to this offering, there is still a risk that you may experience immediate and substantial dilution.

Issuances of shares of common stock or securities convertible into or exercisable for shares of common stock following this offering, as well as the exercise of options, will dilute your ownership interests and may adversely affect the future market price of our common stock.

We may require additional capital to meet our operating requirements. We may seek additional capital through a combination of private and public equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements, which may cause your ownership interest to be diluted. In addition, as of June 30, 2024, there were (i) 4,774,276 shares of common stock that are issuable upon the exercise of the Private Placement Warrants, (ii) 7,499,924 shares of common stock that are issuable upon the exercise of the Public Warrants, (iii) 5,000,000 shares of common stock that are issuable upon the conversion of the Brookfield SAFE, (iv) 300,000 shares of common stock that are issuable under the AM Warrant, (v) 4,083,486 shares of common stock issuable upon the exercise of the Shortfall Warrants, (vi) 19,072,207 shares of common stock issuable upon the exercise of options outstanding. In addition, any outstanding Convertible Notes may be converted into shares of our common stock. If these securities are exercised or converted, as applicable, you may incur dilution. Moreover, to the extent that we issue additional options or warrants to purchase, or other securities convertible into or exchangeable for, shares of our common stock in the future and those options, warrants or other securities are exercised, converted or exchanged, stockholders may experience dilution.

A substantial number of shares may be sold in the market following this offering, which may depress the market price for our common stock.

Sales of a substantial number of shares of our common stock in the public market following this offering could cause the market price of our common stock to decline. A substantial majority of the outstanding shares of our common stock are, and all of the shares sold in this offering upon issuance will be, freely tradable without restriction or further registration under the Securities Act, unless these shares are owned or purchased by “affiliates” as that term is defined in Rule 144 under the Securities Act. In addition, we have also registered the shares of common stock that we may issue under our equity incentive plans. As a result, these shares can be freely sold in the public market upon issuance, subject to restrictions under securities laws.

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

Subject to certain limitations in the Sales Agreement and compliance with applicable laws, we have the discretion to deliver a placement notice to B. Riley Securities at any time throughout the term of the Sales Agreement. The number of shares that are sold through B. Riley Securities after delivering a placement notice will fluctuate based on a number of factors, including the market price of our common stock during the term of the Sales Agreement, the limits we set with B. Riley Securities in any applicable placement notice, and the demand for our common stock during the term of the Sales Agreement. Additionally, our board of directors could change the minimum sales price that we are authorized to sell shares under the Sales Agreement. Because the price per share of each share sold will fluctuate during the term of the Sales Agreement, it is not currently possible to predict the number of shares that will be sold or the gross proceeds to be raised in connection with the sales of shares of common stock offered under this prospectus and failure to raise enough working capital to fund our business could have a material adverse effect on our business, operating results, financial condition, and prospects.

We have never paid dividends on our capital stock, and we do not anticipate paying dividends in the foreseeable future.

We have never paid dividends on any of our capital stock and currently intend to retain any future earnings to fund the growth of our business. Any determination to pay dividends in the future will be at the discretion of our board of directors, and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for the foreseeable future.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate sales proceeds of up to \$100,000,000 from time to time. Because there is no minimum offering amount required in this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the Sales Agreement with B. Riley Securities as a source of financing.

We currently intend to use the net proceeds from the sale of the securities offered hereby for general corporate purposes. Pending these uses, we expect to invest the net proceeds in short-term U.S. treasury money market mutual funds.

The amounts and timing of our actual expenditures will depend on numerous factors, including our development efforts and other factors described under “Risk Factors” in this prospectus and the documents incorporated by reference herein, as well as the amount of cash used in our operations. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds.

DESCRIPTION OF COMMON STOCK

We may issue, separately or together with, or upon conversion, exercise or exchange of other securities, shares of our common stock as set forth in the applicable prospectus supplement. The following section describes the material features and rights of our common stock, \$0.0001 par value per share, and does not purport to be complete. It is subject to, and qualified in its entirety by reference to, our second amended and restated certificate of incorporation, as amended (the “Charter”) and our Bylaws (the “Bylaws”) and applicable provisions of the Delaware General Corporation Law (“DGCL”). Each of our Charter and Bylaws is incorporated by reference as an exhibit to the registration statement of which this prospectus forms a part.

General

The Charter authorizes the issuance of 620,000,000 shares, consisting of 600,000,000 shares of common stock, \$0.0001 par value per share, and 20,000,000 shares of preferred stock, \$0.0001 par value per share. As of October 4, 2024, there were 197,782,055 shares of our common stock outstanding. No shares of preferred stock are currently outstanding.

Common Stock

The Charter provides the following with respect to the rights, powers, preferences and privileges of the common stock.

Voting Power

Except as otherwise required by law or as otherwise provided in any certificate of designation for any series of preferred stock, the holders of shares of common stock possess all voting power for the election of LanzaTech’s directors and all other matters requiring stockholder action. Holders of shares of common stock are entitled to one vote for each share held on all matters to be voted on by stockholders.

Dividends

Holders of shares of common stock will be entitled to receive such dividends, if any, as may be declared from time to time by the Board in its discretion out of funds legally available therefor. We do not intend to pay cash dividends on the common stock for the foreseeable future. Any payment of cash dividends in the future will be dependent upon LanzaTech’s revenues and earnings, if any, capital requirements and general financial conditions. In no event will any stock dividends or stock splits or combinations of stock be declared or made on shares of common stock unless the shares of common stock at the time outstanding are treated equally and identically.

Liquidation, Dissolution and Winding Up

In the event of LanzaTech’s voluntary or involuntary liquidation, dissolution, distribution of assets or winding-up, the holders of shares of common stock will be entitled to receive an equal amount per share of all of LanzaTech’s assets of whatever kind available for distribution to stockholders, after the rights of the holders of the preferred stock have been satisfied.

Preemptive or Other Rights

The LanzaTech stockholders have no preemptive or other subscription rights. No sinking fund provisions are applicable to the common stock.

Registration Rights

AMCI, certain of the Legacy LanzaTech stockholders and certain AMCI stockholders entered into a registration rights agreement, pursuant to which, among other things, such stockholders were granted certain registration rights with respect to certain shares of securities held by them.

Listing of Common Stock

Our common stock is listed on Nasdaq under the symbol “LNZA”.

Transfer Agent and Registrar

The transfer agent and registrar for our common stock is Continental Stock Transfer & Trust Company.

Certain Anti-Takeover Provisions of Delaware Law and our Charter and Bylaws

Charter and Bylaws

Among other things, the Charter and Bylaws:

- permit the Board to issue up to 20,000,000 shares of preferred stock, with any rights, preferences and privileges as they may designate, including the right to approve an acquisition or other change of control;
- provide that the number of directors of LanzaTech may be changed only by resolution of the Board;
- provide that, subject to the rights of any series of preferred stock to elect directors, directors may be removed only with cause by the holders of at least 66⅔% of all of LanzaTech’s then-outstanding shares of the capital stock entitled to vote generally at an election of directors;
- provide that all vacancies, including newly created directorships, may, except as otherwise required by law, be filled by the affirmative vote of a majority of directors then in office, even if less than a quorum;
- provide that stockholders seeking to present proposals before a meeting of stockholders or to nominate candidates for election as directors at a meeting of stockholders must provide advance notice in writing, and also specify requirements as to the form and content of a stockholder’s notice;
- provide that special meetings of LanzaTech’s stockholders may be called by the Board pursuant to a resolution adopted by a majority of the Board;
- provide that the Board will be divided into three classes of directors, with the classes to be as nearly equal as possible, and with the directors serving three-year terms, therefore making it more difficult for stockholders to change the composition of the Board; and
- do not provide for cumulative voting rights, therefore allowing the holders of a majority of the shares of common stock entitled to vote in any election of directors to elect all of the directors standing for election, if they should so choose.

The combination of these provisions will make it more difficult for the existing stockholders to replace the Board as well as for another party to obtain control of LanzaTech by replacing the Board. Because the Board has the power to retain and discharge its officers, these provisions could also make it more difficult for existing stockholders or another party to effect a change in management. In addition, the authorization of undesignated preferred stock makes it possible for the Board to issue shares of preferred stock with voting or other rights or preferences that could impede the success of any attempt to change the control of LanzaTech.

These provisions are intended to enhance the likelihood of continued stability in the composition of the Board and its policies and to discourage coercive takeover practices and inadequate takeover bids. These provisions are also designed to reduce LanzaTech’s vulnerability to hostile takeovers and to discourage certain tactics that may be used in proxy fights. However, such provisions could have the effect of discouraging others from making tender offers for LanzaTech’s shares and may have the effect of delaying changes in its control or management. As a consequence, these provisions may also inhibit fluctuations in the market price of LanzaTech’s Common Stock.

Certain Anti-Takeover Provisions of Delaware Law

LanzaTech is subject to the provisions of Section 203 of the DGCL, which prevents certain Delaware corporations, under certain circumstances, from engaging in a “business combination” with:

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

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

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

These provisions may have the effect of delaying, deferring, or preventing changes in control of LanzaTech.

Limitations on Liability and Indemnification of Officers and Directors

The DGCL authorizes corporations to limit or eliminate the personal liability of directors of corporations and their stockholders for monetary damages for breaches of directors’ fiduciary duties, subject to certain exceptions. The Charter includes a provision that eliminates the personal liability of directors for damages for any breach of fiduciary duty as a director where, in civil proceedings, the person acted in good faith and in a manner that person reasonably believed to be in or not opposed to the best interests of LanzaTech or, in criminal proceedings, where the person had no reasonable cause to believe that his or her conduct was unlawful.

The Bylaws provide that we must indemnify and advance expenses to our directors and officers to the fullest extent authorized by the DGCL. We are also expressly authorized to carry directors’ and officers’ liability insurance providing indemnification for our directors, officers, and certain employees for some liabilities. We believe that these indemnification and advancement provisions and insurance are useful to attract and retain qualified directors and executive officers.

The limitation of liability, advancement and indemnification provisions in the Charter and Bylaws may discourage stockholders from bringing lawsuits against directors for breaches of their fiduciary duties. These provisions also may have the effect of reducing the likelihood of derivative litigation against directors and officers, even though such an action, if successful, might otherwise benefit us and our stockholders. In addition, your investment may be adversely affected to the extent we pay the costs of settlement and damage awards against directors and officer pursuant to these indemnification provisions.

Dissenters’ Rights of Appraisal and Payment

Under the DGCL, with certain exceptions, stockholders will have appraisal rights in connection with a merger or consolidation of LanzaTech. Pursuant to the DGCL, stockholders who properly request and perfect appraisal

rights in connection with such merger or consolidation will have the right to receive payment of the fair value of their shares as determined by the Delaware Court of Chancery.

Stockholders' Derivative Actions

Under the DGCL, any of our stockholders may bring an action in LanzaTech's name to procure a judgment in LanzaTech's favor, also known as a derivative action, provided that the stockholder bringing the action is a holder of our shares at the time of the transaction to which the action relates or such stockholder's stock thereafter devolved by operation of law.

DILUTION

If you invest in our common stock in this offering, your ownership interest may be diluted to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock immediately after this offering.

As of June 30, 2024, our net tangible book value was \$67.5 million, or \$0.34 per share of common stock. Net tangible book value per share represents the amount of our total tangible assets less total liabilities, divided by the number of shares of common stock outstanding as of June 30, 2024.

After giving effect to the assumed sale of our common stock in the aggregate amount of \$100,000,000 at an assumed offering price of \$2.04 per share, the closing price of our common stock on Nasdaq on October 4, 2024, and after deducting commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2024 would have been \$163.6 million, or \$0.66 per share of common stock. This amount would represent an immediate increase in net tangible book value of \$0.32 per share to our existing stockholders and an immediate decrease in net tangible book value of \$1.38 per share to investors purchasing shares in this offering.

The following table illustrates this calculation on a per share basis. The as adjusted information is illustrative only and will adjust based on the actual price to the public, the actual number of shares sold and other terms of the offering determined at the time shares of our common stock are sold pursuant to this prospectus. The shares sold in this offering, if any, will be sold from time to time at various prices. Therefore, while this illustration reflects accretion to investors purchasing shares in this offering, depending on the price at which shares are sold in this offering, investors purchasing shares in this offering may experience dilution.

Assumed public offering price per share		\$	2.04
Net tangible book value per share as of June 30, 2024	\$	0.34	
Increase in net tangible book value per share attributable to investors purchasing shares in this offering	\$	0.32	
As adjusted net tangible book value per share as of June 30, 2024, after giving effect to this offering		\$	0.66
Dilution per share to investors purchasing our common stock in this offering		\$	1.38

The table above assumes for illustrative purposes that an aggregate of 49,019,608 shares of our common stock are sold pursuant to this prospectus at a price of \$2.04 per share, the closing price of our common stock on Nasdaq on October 4, 2024, for aggregate gross proceeds of \$100,000,000. The shares sold in this offering, if any, will be sold from time to time at various prices pursuant to the Sales Agreement with the Sales Agents. A \$1.00 increase in the assumed public offering price of \$1.00 per share, which is the minimum sales price authorized by our board of directors, would increase our as adjusted net tangible book value per share to \$0.71, resulting in dilution to investors purchasing shares in this offering of \$2.33 per share, after deducting commissions and estimated offering expenses payable by us.

The foregoing table and calculations are based on 197,765,067 shares of our common stock outstanding as of June 30, 2024, and exclude:

- 4,774,276 shares of common stock that are issuable upon the exercise of the Private Placement Warrants originally issued in a private placement to the Sponsor in connection with the IPO of AMCI and upon the conversion of certain working capital loans of the Sponsor, at a price of \$1.00 per warrant;
- 7,499,924 shares of common stock that are issuable upon the exercise of the Public Warrants originally issued in connection with the AMCI IPO as units of AMCI at a price of \$10.00 per unit, with each unit consisting of one share of AMCI's Class A common stock and one-half of one warrant;
- 5,000,000 shares of common stock that are issuable upon the conversion of the Brookfield SAFE at the equivalent to a price of \$10.00 per share;

- 300,000 shares of common stock that are issuable under the AM Warrant at the equivalent to a price of \$10.00 per share;
- 4,083,486 shares of common stock issuable upon the exercise of the Shortfall Warrants;
- 19,072,207 shares of common stock issuable upon the exercise of Options outstanding as of June 30, 2024, at a weighted average exercise price of \$2.13 per share of Common Stock;
- 4,139,726 shares of common stock issuable upon the vesting of RSUs outstanding as of June 30, 2024;
- 3,746,205 shares of common stock issuable upon the vesting of PSUs outstanding as of June 30, 2024;
- 96,153,847 shares of common stock reserved for issuance upon conversion of our outstanding Convertible Notes; and
- 13,532,919 shares of common stock reserved for future issuance under our long-term incentive plan.

To the extent that any of the Convertible Securities are exercised, investors purchasing shares in this offering could experience further dilution. In addition, we may choose to raise additional capital due to market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans. To the extent that additional capital is raised through the sale of equity or equity-based securities, the issuance of these securities could result in further dilution to our stockholders.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement and a Terms Agreement with B. Riley Securities, pursuant to which, under this prospectus we may issue and sell our common stock having aggregate sales proceeds of up to \$100,000,000 from time to time through or to B. Riley Securities, acting as sales agent or principal, subject to certain limitations. Sales of shares of our common stock, if any, will be made by any method deemed to be an “at the market offering” as defined in Rule 415 promulgated under the Securities Act.

Each time we wish to issue and sell common stock under the Sales Agreement pursuant to any agency sale, we will notify B. Riley Securities of the number of shares to be issued, the dates on which such sales are anticipated to be made, any minimum price below which sales may not be made and other sales parameters as we deem appropriate. B. Riley Securities has agreed that once we have so instructed it, unless B. Riley Securities declines to accept the terms of the notice, it will use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms.

From and after the date hereof, we will have the right, but not the obligation, from time to time at our sole discretion, to direct B. Riley Securities on any trading day to act on a principal basis and purchase up to the lesser of (i) 50% of the trading volume traded during normal trading hours on the trading day immediately prior to the date on which a commitment notice is delivered to B. Riley Securities and (ii) \$180,000, by timely delivering a written notice to B. Riley Securities in accordance with the Sales Agreement; provided, however, only one principal sale may be requested per day, unless otherwise agreed to by B. Riley Securities. Notwithstanding the foregoing, the aggregate amount of shares of common stock that we will direct B. Riley Securities to sell as principal in principal transactions (inclusive of any shares sold by B. Riley Securities in agency transactions) in any calendar week shall not exceed \$900,000.

B. Riley Securities will be entitled to a commission in an amount equal to (i) 3.0% of the gross proceeds per share sold under the Sales Agreement and (ii) 5.0% of the purchase price per share sold in principal transactions, under the Terms Agreement. B. Riley Securities may also receive customary brokerage commissions from purchasers of the common stock in compliance with FINRA Rule 2121. B. Riley Securities may effect sales to or through dealers, and such dealers may receive compensation in the form of discounts, concessions or commissions from B. Riley Securities and/or purchasers of shares of common stock for whom they may act as agents or to whom they may sell as principal. In addition, we have agreed to reimburse legal expenses of B. Riley Securities in an amount not to exceed \$100,000 in connection with the execution of this Agreement, and not to exceed \$10,000 per calendar quarter thereafter in connection with updates at the time of Representation Dates, in addition to certain ongoing disbursements of its legal counsel. We estimate that the total expenses for the offering, excluding compensation payable or fees reimbursable to B. Riley Securities under the terms of the Sales Agreement, will be approximately \$170,000.

Settlement for sales of common stock sold on an agency basis will occur on the first business day following the date on which any sales are made (or any such other settlement cycle as may be in effect pursuant to Rule 15c6-1 under the Exchange Act), or on some other date that is agreed upon by us and B. Riley Securities in connection with a particular agency transaction, in return for payment of the net proceeds to us. Settlement for sales of common stock sold on a principal basis shall occur as provided for in the applicable notice. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

The offering pursuant to the Sales Agreement will terminate upon the earliest of (a) the sale of all shares of common stock subject to the Sales Agreement or (b) termination of the Sales Agreement as permitted therein.

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

B. Riley Securities and its affiliates have in the past and may in the future provide various investment banking and other financial services for us and our affiliates, for which services they may in the future receive customary

fees. To the extent required by Regulation M, B. Riley Securities will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

This prospectus in electronic format may be made available on a website maintained by B. Riley Securities, and B. Riley Securities may distribute this prospectus electronically.

LEGAL MATTERS

The validity of the securities by this prospectus will be passed upon for us by Covington & Burling LLP, Washington, D.C. Davis Polk & Wardwell LLP, New York, New York is counsel for B. Riley Securities in connection with this offering.

EXPERTS

The financial statements of LanzaTech Global, Inc. as of December 31, 2023 and 2022, and for each of the two years in the period ended December 31, 2023, incorporated by reference in this prospectus, and the effectiveness of LanzaTech Global, Inc.'s internal control over financial reporting as of December 31, 2023, have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their reports which express an unqualified opinion on the financial statements and an adverse opinion on the effectiveness of LanzaTech Global, Inc.'s internal control over financial reporting as of December 31, 2023. Such financial statements are incorporated by reference in reliance upon the reports of such firm given their authority as experts in accounting and auditing.

LanzaTech