



LanzaTech

2023 Annual Report

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

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2023

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission File Number: 001-40282

LanzaTech Global, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

92-2018969

(I.R.S. Employer Identification No.)

8045 Lamon Avenue, Suite 400

Skokie, Illinois 60077

(Address of Principal Executive Offices, Including Zip Code)

(846) 324-2400

(Registrant's Telephone Number, Including Area Code)

Securities Registered Pursuant to Section 12(b) of the Act:

<u>Title of Each Class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, \$.0001 par value	LNZA	Nasdaq Capital Market
Warrants to purchase common stock	LNZAW	Nasdaq Capital Market

Securities Registered Pursuant to Section 12(g) of the Act: None

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 if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, an emerging growth company or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer," "emerging growth company" and "smaller reporting 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 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

The aggregate market value of the voting stock held by non-affiliates of the registrant was approximately \$732,552,000 based on the closing price of the registrant's Common Stock on June 30, 2023. The number of shares outstanding of the registrant's Common Stock as of December 31, 2023 was 196,642,451.

Documents incorporated by reference: Part III incorporates information by reference to the registrant's definitive proxy statement, to be filed with the Securities and Exchange Commission within 120 days after the close of the fiscal year ended December 31, 2023.

FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K (the “Form 10-K” or “Annual Report”) 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 Annual Report, 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 raise substantial additional financing in the future;
- 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;
- our receipt of substantial additional financing to fund our operations and complete the development and commercialization of our process technologies;
- 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 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; 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 Annual Report.

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 Annual Report. 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 Annual Report may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements in this Annual Report.

The forward-looking statements included in this Annual Report 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 Annual Report to conform these statements to actual results or to changes in expectations, except as required by law.

You should read this Annual Report and the documents that have been filed as exhibits to the Annual Report 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.

LANZATECH GLOBAL, INC.
ANNUAL REPORT ON FORM 10-K
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PART I

Item 1. Business

Business Overview

Founded in 2005 in New Zealand and headquartered today in Skokie, Illinois, we are 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. Our goal is to reduce the need for virgin fossil fuels by challenging and striving to change the way the world uses carbon. We aim to accomplish this through the creation of a circular economy where carbon can be reused rather than wasted. Through technology and applications that are designed to touch multiple points of carbon use such as converting industrial, municipal, and agricultural waste into products, developing sustainable products to change the supply chain, and having systems to reuse the waste once consumers are done with the products, we believe we can offer a solution to help alleviate the global carbon crisis. Our economically viable and scalable technology is designed to enable emitters to reduce their environmental impact and potentially to replace materials made from virgin fossil resources with recycled carbon, supporting their climate goals, meeting mandated targets, and creating a more sustainable future.

Using our process technology, our partners launched the world's first commercial carbon refining plant in 2018 in China and have subsequently added three commercial plants operating in China. Additionally, LanzaTech's partners in India started up a commercial scale facility in September 2023 utilizing refinery off-gas, and our partners in Belgium started up a commercial scale facility in November 2023 utilizing steel off-gas. In addition to the six operating commercial plants in China, India, and Belgium, LanzaTech's partners in Canada and Japan are operating demonstration scale facilities respectively utilizing gasified forestry residues and gasified unsorted municipal solid waste. Both these demonstration scale plants completed commissioning and early start up in late 2022. LanzaTech has numerous commercial projects in construction, under development and in the pipeline globally. Our technology platform is designed to use a variety of waste feedstocks, from waste industrial gases to biomass residues and municipal solid waste. Our 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. We believe LanzaTech's proven commercialized technology can enable global scale decarbonization and initiate a circular and climate positive carbon economy.

Gas fermentation is a economically viable and operationally robust form of carbon capture and transformation that enhances the value of waste streams and reduces environmental pollution. Additionally, our technology platform utilizes existing industrial land and recycled process water, further reducing the environmental impact of producing our low carbon fuels and chemicals on land and biodiversity. Gas fermentation is a key part of our technology offering and we license this capability to customers to develop their own gas fermentation facilities, accelerating the spread of our technology across a variety of feedstocks and geographies.

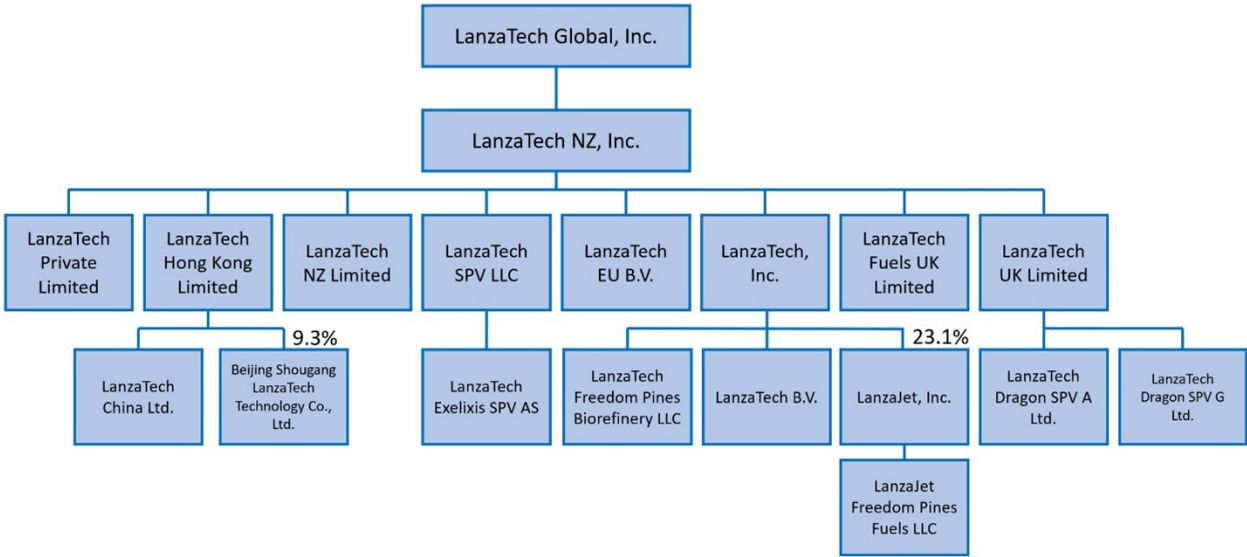
Our novel technology platform is similar to brewing, but instead of using yeast that eat sugar to make alcohol, our biocatalysts, or microbes, eat waste carbon to produce ethanol, ethanol derivatives, and ethanol co-products. Because our system is biological and can grow in dynamic environments and react in real-time to changing conditions, it is much more tolerant of variability in feedstock composition and supply than conventional systems based on catalytic chemistry and is therefore highly customizable.

Our low carbon ethanol is now being produced at commercial scale at six locations globally, with production of over 75 million gallons of fuel grade ethanol, resulting in the mitigation of over 380,000 tons of CO₂ and keeping the equivalent of an estimated 35 million gallons of oil in the ground since May 2018. Used microorganisms from our commercial facilities are protein-rich and are sold locally as animal feed.

We are also developing biocatalysts and processes to produce a vast suite of additional products utilizing novel biocatalysts, including acetone and isopropanol ("IPA") and important industrial solvents used in multiple applications including production of polymers from IPA. Products generated through the application of downstream catalytic chemistry of ethanol include SAF, sustainable diesel, ethylene, polyethylene, polyethylene terephthalate ("PET"), surfactants and glycols. Sustainable diesel can be blended with conventional diesel fuels as "drop in fuel" without any blending wall set by engine technology and offers reduced emissions, improving local air quality. Ethylene is widely used in the chemical industry, mostly for production of polyethylene, a plastic containing polymer chains of ethylene units in various chain lengths. Polyethylene is primarily used to make films and for packaging applications. Ethylene glycol is another product that can be used for production of surfactants, a key ingredient for detergents and liquid soap production. Ethanol can be further converted to monoethylene glycol ("MEG"), an important precursor to PET for use in packaging and textiles applications.

In June 2020, we helped launch LanzaJet, a SAF company, and maintain approximately 23% ownership stake in the business. In January 2024, LanzaJet celebrated the opening of the world’s first ethanol-to-sustainable aviation fuel facility in Soperton, Georgia, USA. The plant is expected to ramp up production over the first half of the year. The plant was developed and scaled up using LanzaTech’s platform technology, which enables the conversion of ethanol to sustainable jet and diesel fuels, in collaboration with the Pacific Northwest National Lab and the U.S. Department of Energy. Using our platform technology, we have converted ethanol produced from steel mill emissions to SAF and have powered commercial flights by Virgin Atlantic in 2018 and All Nippon Airways in 2019.

For a complete depiction of our organizational structure, please refer to the structure chart below.



We aim to maximize revenue through the selective deployment of both our licensing and co-development models. Our licensing model focuses on generating licensing, royalty, and services fees from our commercialization efforts, while our partners own and operate the gas fermentation plants. This capital-light model enables us to concurrently partner with a significant number of partners to build customer-owned gas fermentation facilities in parallel, accelerating the spread of our technology platform. Our licensing model is expected to generate stable, recurring revenues which we anticipate will compound as more customer plants are built and validated by our pipeline of customers. As a licensor and services provider, we structure our agreements to provide engineering and startup services and key components of the overall equipment package that are based on our proprietary designs and integrations. Once fully operational, recurring revenues will be generated from royalties on the offtake, ongoing supply of microbes and media, as well as software, monitoring and analytics support. In certain more limited cases, we will act as co-developer on projects, allowing us to leverage our existing relationships and engineering and project development expertise in a financial sponsor role for select projects where we believe we can participate in the ownership, either directly or by arranging and deploying third-party capital, and operation of the gas fermentation plant. In the select instances where we will participate directly in the project ownership, we expect to be a minority investor in those projects’ capital requirements, accounting for approximately 5% of the total capital. We believe that the co-development model has the potential to allow for the acceleration of the development and integration of new feedstocks and products while also allowing us to capture additional potential value from the individual project’s performance. In each instance of co-development, we intend to license our technology directly to the project, which we expect will enable us to capture the same revenue streams of licensing, royalty, and services fees generated through the licensing model with customer-owned facilities. To maximize revenue from each project, whether via licensing or co-development, we plan to sell supplies and equipment to our projects and customers. Additionally, we provide advisory, research and engineering services to develop new chemicals, use new feedstocks, and advance new fermentation or synthetic biology capabilities.

Our management team has more than 150 years of combined research and development, engineering and scale up, operations, partnering and licensing experience in the energy industry. Our company was co-founded in 2005 by our advisor and former Chief Scientific Officer, Dr. Sean Simpson, and the late molecular biology expert, Dr. Richard Forster. Dr. Jennifer Holmgren, our Chief Executive Officer since 2010, has over 30 years of experience in the energy sector, including a proven track record in the development and commercialization of renewable jet fuel and chemical technologies. We are led by a diverse management team and board of directors with deep experience in leading energy companies and

major financial institutions. We believe the expertise of our leadership team and the strength of our relationships within the industry are critical to our strategy as we continue to deploy our technology and expand our business.

Market Opportunity

Overview

GHG emissions are rampant in major economic areas across the globe. In Asia, the largest emitter of GHGs, approximately 10 billion metric tons of CO₂ are emitted per year, with almost 30% of the global territorial fossil fuel CO₂ emissions occurring in China alone. In the United States, approximately six billion metric tons of CO₂ have been emitted annually for over 30 years. In Europe, nearly five billion metric tons of CO₂ are emitted per year. GHGs from human activities are the most significant driver of observed climate change, which is taking on greater importance and urgency throughout the world.

In 2016, the Paris Agreement was signed by a consortium of countries committing to limit the increase of global average temperatures to 2°C or less compared to pre-industrial levels. Such initiatives have placed an increased emphasis on monitoring and mitigating the effects of climate change and generally promoting environmentally friendly behavior. In 2017, the International Energy Agency (“IEA”) estimated that an annual \$3.5 trillion in energy-sector investments would be required through 2050 to achieve the 2°C target. In 2019, the European Union released the Green Deal Communication, a package of measures and policies ranging from ambitiously cutting emissions, to investing in cutting-edge research and innovation, to preserving Europe’s natural environment and achieving a carbon neutral economy by 2050. The roadmap includes a comprehensive plan to increase the European Union’s GHG reduction target for 2030 to at least 50% and toward 55% as compared to 1990, compared to the current target of 40%. In the United States, President Biden re-committed to the Paris Agreement, pledging 50-52% GHG reductions by 2030 compared to 2005 levels. In 2021, the U.S. Congress passed the Infrastructure Investment and Jobs Act, which included over \$62 billion for the U.S. Department of Energy to use for clean energy technology deployment. In 2022, President Biden signed the Inflation Reduction Act, which provides funding for clean energy deployment and climate change mitigation and adaptation.

Alongside potential government mandates for aviation and industrial emitters, regional governments, companies and investors have announced their own emissions and waste reduction targets. According to the RE100 initiative, nearly 350 global companies spanning a broad array of sectors have pledged to transition to 100% renewable electricity by 2050 with an average target date of 2030. Outside of the RE100, many more companies are facing consumer and shareholder pressure to increase their environmental disclosures and join the transition to cleaner energy sources. For example, the members of the International Air Transport Association, which includes nearly 300 airlines responsible for over 80% of the world’s air traffic, have committed to cut their emissions in half by 2050 compared to 2005 levels. In addition, in March 2021, Airlines for America, the industry trade organization representing the leading U.S. airlines, announced the commitment of its member carriers to work to achieve net-zero carbon emissions by 2050. The carriers also committed to work toward a rapid expansion of the production and deployment of commercially viable SAF, specifically to make two billion gallons of SAF available to U.S. aircraft operators in 2030.

We believe that carbon capture and transformation technologies will be used increasingly within industrial sectors of the economy as one of the primary methods to reduce GHG emissions and meet mandates and climate goals. The two options for dealing with captured carbon today are sequestering it in the ground, or carbon capture and sequestration (“CCS”), and recycling it into products, or carbon capture and utilization or transformation (“CCU” or “CCT”).

We believe LanzaTech can provide a profitable pathway to solving an emitter’s carbon problem. For example, today in Europe, a steel mill can pay penalties for their emissions, purchase offsets, or invest in a CCS facility and reduce their emissions at site under an Emissions Trading System. In each case, we believe the cost of the emissions, offsets or investment in a CCS facility are less cost effective than building a LanzaTech CCT facility to decrease carbon emissions.

While reducing the carbon intensity of fuels is important, it does not address the carbon contained in physical goods. Sustainability-marketed products grew 7.1 times faster than conventionally marketed products from 2015 to 2019. Many companies have already pledged to achieve carbon neutral or net zero carbon targets, with some aiming to achieve that target within the next decade.

Currently, we recycle carbon to produce ethanol that can be used for SAF production, the global addressable market for which is estimated at \$180 billion. Our customers also operate our carbon refining technology in the single-cell protein market, estimated at \$16 billion in 2019, because our process makes high protein biomass as a byproduct. Ethanol can also be converted to MEG and PET, with markets worth an estimated \$28 billion for MEG and \$44 billion for PET packaging at the end of 2021. We have a portfolio of existing recycled carbon and soon-to-be commercialized CarbonSmart products that we believe have the potential to penetrate more chemicals markets in the coming years as more commercial facilities begin

operations. CarbonSmart is a concept where we see carbon waste transformed into many products that we use in our daily lives. Approximately two tons of CO₂ are removed per ton of CarbonSmart product made.

Many of our customers and partners are brand owners who have made strong sustainability commitments and endeavor to connect their customers with low carbon products that do not compete with food production for feedstock, land, or water.

Overview of Ethanol Market

Ethanol can be used directly as a fuel but can also serve as a feedstock to produce a broad range of products, including cosmetics and beauty products, hand hygiene products, paint, food additives, tires, children's toys, plastic products, rubber, clothing and upholstery. The United States is responsible for over half of ethanol production globally and has produced an average of nearly 15 billion gallons of ethanol annually since 2015, while the ethanol output for the rest of the world has increased by over 20% during the same period. Meanwhile, most governments have instituted caps on food-derived ethanol. The focus of most ethanol growth in the future is expected to be waste-based, non-food ethanol.

Overview of Fuel Market

In 2019, global fuel ethanol production reached 30 billion gallons. We believe the demand for renewable fuels and related infrastructure will rise substantially over the next decade driven by strong demand from both consumers and sustainability-focused suppliers. We also believe that the federal regulatory framework in the United States, including the Renewable Fuel standard, will drive production of ethanol for the liquid transportation fuel market. We believe the production of ethanol from recycled carbon, such as from industrial emissions, will also have a market in the European Union through the Renewable Energy Directive and at the state level in the United States with the California Low Carbon Fuel Standard. Other states in the Northeast United States, as well as Canada, have signaled they will institute such policies in the coming years.

Sustainable Aviation Fuel ("SAF"): Mandated global SAF demand is expected to hit 61 billion gallons per year by 2040. The Biden Administration has a goal of replacing all jet fuel with sustainable alternatives by 2050. The global market for aviation fuel is estimated to be nearly \$250 billion by 2026. Airlines and aviation sector coalitions, including companies addressing Scope 3 emissions are making corporate commitments to increase SAF use. To reach expected 2030 SAF demand, global SAF capacity must achieve an 87% CAGR.

Overview of Chemicals and Protein Markets

According to the IEA, the chemicals sector is the largest industrial consumer of both oil and gas. Petrochemical feedstock accounts for 12% of global oil demand, a share that is expected to increase because of increasing demand for plastics, fertilizers, and other products. With the growth in demand for petrochemical products, petrochemicals are expected to account for over a third of the growth in oil demand to 2030, and nearly half to 2050, ahead of land transportation, aviation, and shipping. Petrochemicals are also poised to consume an additional 56 billion cubic meters of natural gas by 2030. Currently, organic chemicals are predominantly derived from fossil sources such as petroleum. These chemicals are used to produce a wide array of materials. More than 10 million barrels of oil are consumed daily to create these materials, releasing massive quantities of new carbon into the atmosphere in the process.

Protein demand is outpacing supply. Today's alternatives are dominated by crop-based feedstocks. It is currently estimated that the plant-based protein market will be valued at \$162 billion in 2030 and would make up an estimated 7.7% of the global protein market.

Key Competitive Advantages

We believe the following combination of capabilities and strengths distinguishes us from our potential competitors.

Proven, Differentiated, Adaptable Proprietary Technology Platform. We are a leader in gas fermentation and have developed economically attractive, commercial-scale carbon recycling technology and end products. Our proprietary technology platform allows us to produce different products and chemicals from multiple feedstocks utilizing the same process at the same plant. Our biological system ensures stable performance despite fluctuating gas feedstock compositions, unlike thermocatalytic processes, which require consistent gas feedstock compositions.

New high-value chemical intermediates can be used to make materials such as acrylics, fibers, plastics and synthetic rubber and a wide variety of chemicals including alcohols, acids, esters, and ketones. LanzaTech has demonstrated this with several partners who have used chemical intermediates to make fabrics, packaging, detergent, cleaning agents and fragrances. This process reuses carbon for the production of consumer goods, creating a circular carbon economy where carbon is refined and re-used instead of emitted as harmful greenhouse gases from a single use.

Our technology enables a circular carbon economy, which keeps carbon in the ground instead of allowing it to be emitted into the atmosphere, as pollution. By reusing carbon as a chemical building block to make every-day goods, we are reducing the need to extract virgin fossil resources to make the same products. We believe this could have a game changing impact on the chemical industry and its supply chain, shifting the way the industry considers commodity sourcing and supply.

Low Carbon, Enabling Technology. Our technology is designed for use across the supply chain, from emitters of waste carbon to those who want to develop products from waste carbon. Industrial emitters can implement LanzaTech's carbon capture solution onto their existing facility and derive revenue from used carbon. As an example, the first commercial facility in China to utilize our technology platform has sold over 47 million gallons of ethanol into the market, displacing fossil gasoline for road transport use, and avoiding the equivalent of over 240,000 tons of CO₂ emissions at source. Our technology platform allows emitters to play a role in the circular carbon economy by generating products from waste carbon that would otherwise come from virgin fossil resources and selling these products to end users who want to reduce their environmental impact.

Our platform technology is highly customizable and we believe it will provide flexibility to respond to market demand. Through the use of synthetic biology, microorganisms can be engineered to produce different chemicals directly from gases using the same process and production hardware. By changing the microorganism in a commercial facility, we have developed the capability to switch the product focus of commercial plants within a matter of days in response to changing market signals. We believe this will enable production of different product targets in campaigns at the same commercial facility. We believe this capability will enable partners and customers to rapidly respond to fluctuating market conditions and maximize the value of their assets, by producing the highest value product at any given time.

Platform Validated Through Partnerships with Industry Leaders. We have demonstrated the commercial success of gas fermentation on feedstocks from a broad array of waste streams. Four commercial scale facilities in China utilizing steel off-gas and ferroalloy off-gas emission are currently being operated by entities in which the Shougang Joint Venture holds a controlling interest. A commercial plant using refinery off-gas feedstock, owned and operated by IndianOil, began operations in September 2023, and a commercial scale facility in Ghent, Belgium owned by our partner ArcelorMittal utilizing steel off-gas began operations in November 2023. The pilot-scale plant in Japan developed with Sekisui has been producing ethanol from gasified municipal solid waste since 2017. Construction on a next scale 1/10th commercial sized facility with Sekisui was completed in April 2022 and the facility has begun operations. Additionally, a demonstration-scale facility in Alberta, Canada, with partner Suncor, utilizing waste-based feedstocks, including municipal waste and forestry-residues, has produced ethanol in test runs since July 2022, and has now begun full operations. Various other commercial projects using refinery off-gases, industrial off-gases, biorefinery CO₂, ferroalloy off-gases, gasified biomass, and gasified mixed plastic wastes are under development. We have worked with several partners on the integration of the gasification and gas fermentation processes to convert solid feedstocks to fermentation products, culminating in over 50,000 hours of pilot and demonstration scale operations on live synthesis gas ("syngas") produced from gasification.

As a result of our ability to deliver a sustainable, economically advantaged solution to produce fuels chemicals and products using waste feedstocks, we have been able to attract key industry partners in our markets such as Mitsui, ArcelorMittal, Suncor, BASF, IndianOil, and others.

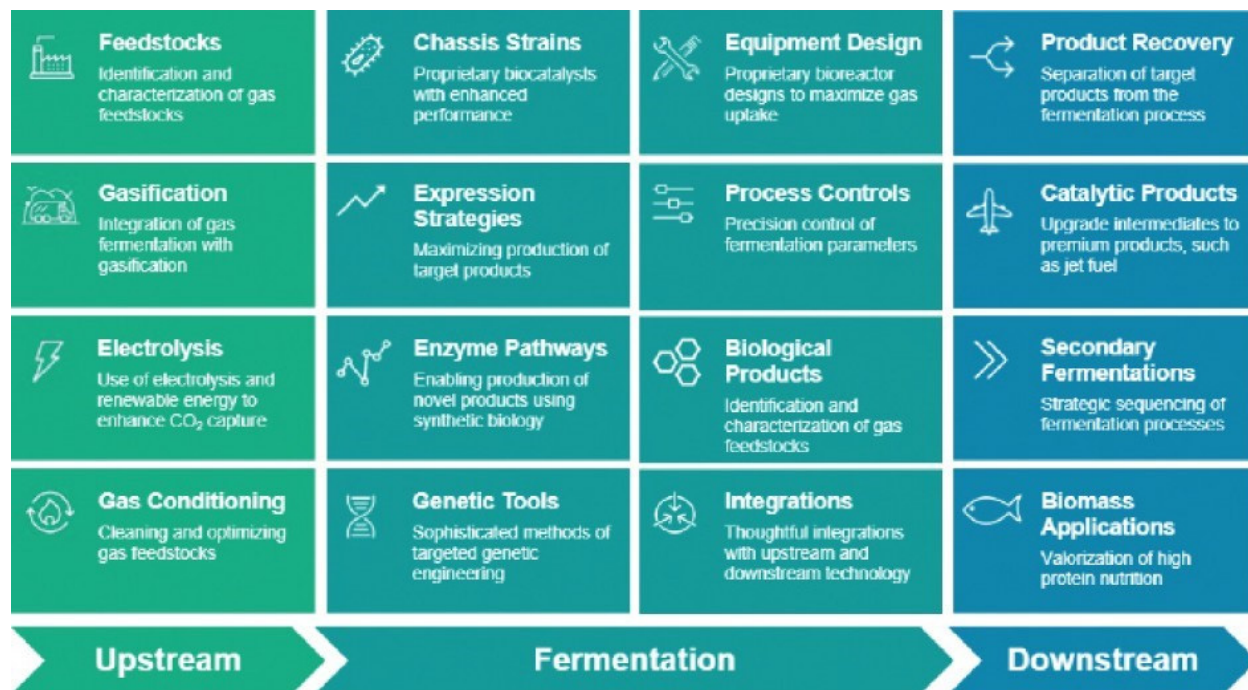
Third Party Sustainability Certifications: In 2020, a commercial Shougang Joint Venture plant (Hebei Shoulang New Energy Company) using LanzaTech's carbon recycling technology received Roundtable on Sustainable Biomaterials ("RSB") certification. RSB certification is awarded to facilities that ensure the traceability of their sustainable product lines, promote the health of their employees, support the welfare of their local communities, and mitigate environmental impacts.

In 2023, two commercial Shougang Joint Venture plants (Hebei Shoulang New Energy Company and Ningxia Binze New Energy Technology Company) equipped with LanzaTech's carbon recycling technology received their International Sustainability & Carbon Certification (ISCC) PLUS and CORSIA certifications. The ISCC PLUS certification ensures traceable, deforestation-free supply chains for food, feed, chemical and energy markets. Additionally, the CORSIA certification validates that the ethanol produced from the plants using LanzaTech's technology platform is eligible for use as a feedstock for sustainable aviation fuel in accordance with International Civil Aviation Organization requirements.

In 2023 LanzaTech Inc, LanzaTech EU BV and LanzaTech Private Limited successfully underwent third party audits for ISCC certifications and LanzaTech Inc continued to maintain its RSB Trader Certification. Trader certifications maintain the chain of custody of any products traded from a certified facility, providing CarbonSmart customers with assurances on the sustainability of their products along the supply chain.

Strong Intellectual Property Position. As of December 31, 2023, we owned or had licensed rights to 1,473 granted patents and 634 pending patent applications across 155 patent families in the United States, Europe, Asia and additional jurisdictions, in addition to our trade secrets. These issued patents and pending patent applications cover not only the upstream (such as gasification and gas conditioning), gas fermentation, and downstream (such as product separations and catalytic conversions) production systems that we are developing or may pursue in the future, but also certain of the underlying technologies used to develop our systems. Our intellectual property portfolio contains patent families spanning the entire platform, from the feedstock to the gas fermentation to the product recovery.

The following chart summarizes the breadth of our IP portfolio:



Extensive Industry Experience. We have over 18 years of experience developing, testing, scaling, and optimizing gas fermentation and integrating gas fermentation with upstream and downstream technologies, culminating in the world’s first commercial gas fermentation plant that our business partner in China started up and operates since 2018. Our management team brings over 150 years of combined research and development, engineering and scale up, operations, partnering and licensing experience in the energy industry.

Our Technology Platform

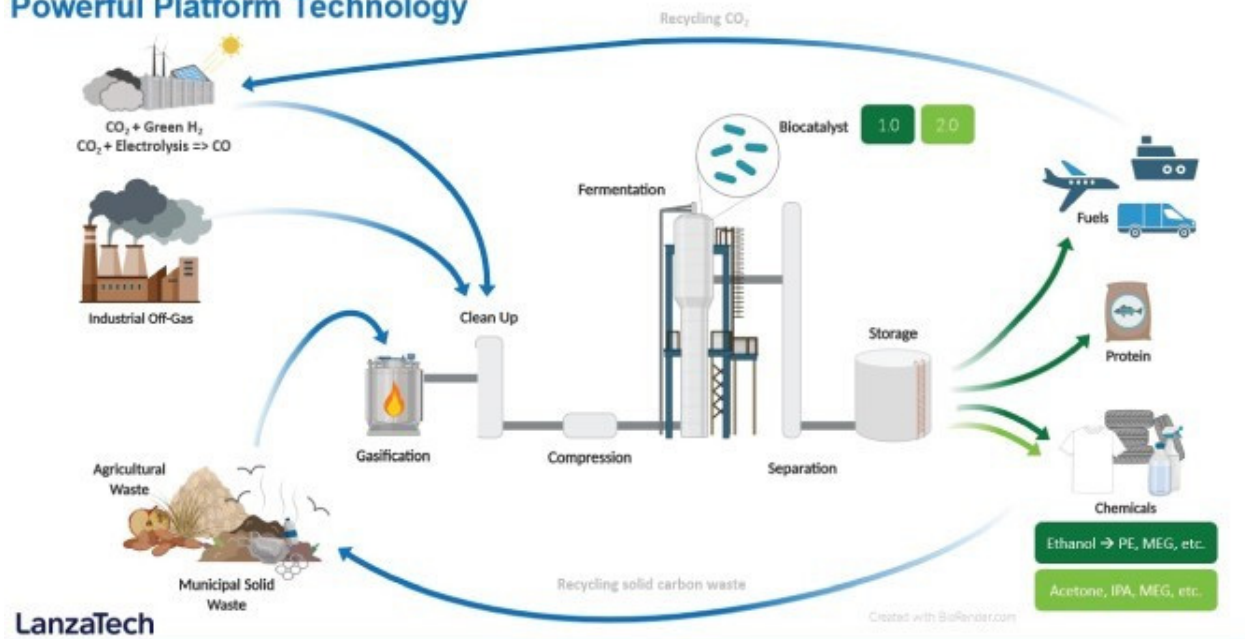
Overview

We have developed, scaled, and deployed an adaptable proprietary technology platform that integrates core gas fermentation with upstream processes, such as gasification and gas conditioning, and downstream processes, such as product separations and catalytic conversions.

Our technology platform is similar to brewing, but instead of using yeast that eat sugar to make alcohol, our biocatalysts, or microbes, eat waste carbon to make end products. Because our system is biological, and biological systems grow in dynamic environments and react in real time to changing conditions, it is much more tolerant of variability in feedstock composition and supply than systems based on catalytic chemistry and is, therefore, highly customizable.

Our technology platform can use feedstocks containing CO₂, H₂ and CO, including waste emissions from steel, oil refining, and ferroalloy industries, gasified municipal solid waste (“MSW”), agricultural wastes, and reformed biogas. We have demonstrated this with partners globally and have shown conversion of these input streams at various scales, including at four commercial facilities in China being operated by entities in which the Shougang Joint Venture holds a controlling interest using industrial emissions. Our commercial partners will be able to combine our gas fermentation system with different engineered biocatalysts to produce different products, allowing them to leverage their existing capital investment and to calibrate production to market conditions.

Powerful Platform Technology



- Step 1:** The process begins by receiving off-gas or waste gas streams comprising gases that contain various mixtures of CO, CO₂ and H₂, such as from steelmaking emissions or gasified waste.
- Step 2:** These gases are compressed, conditioned, and transferred into fermentation bioreactors containing LanzaTech's proprietary biocatalysts (microorganism) and a liquid media.
- Step 3:** The biocatalysts ferment the gases and, as part of their natural biology, they produce ethanol and other chemicals as a result of this fermentation. This is a continuous process that can run without shutting down for extended periods.

LanzaTech's Biocatalyst

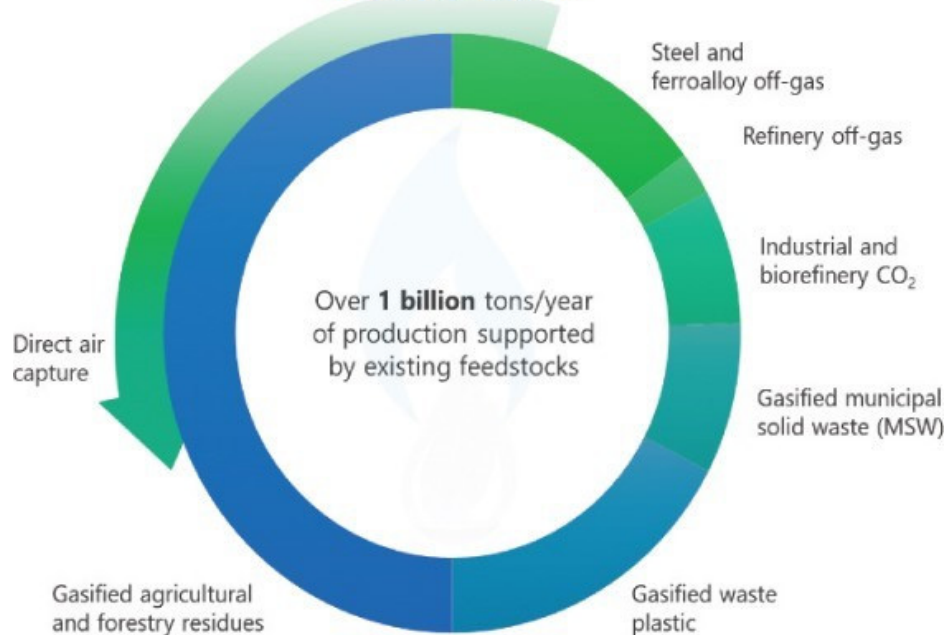
Clostridium autoethanogenum is an Acetogen, a chemolithoautotrophic microorganism that uses certain gases for both carbon and energy. Acetogens naturally produce acetate, and a select subset of Acetogens, including *C. autoethanogenum*, natively synthesize ethanol. Acetogens are ubiquitous in anaerobic environments, such as soil, animal and human guts, sediments, the deep sea, and hot springs. For biotechnological applications, acetogenic clostridia are among the fastest growing acetogens and have been used industrially for more than 100 years.

Our technology platform relies on gas-consuming biocatalysts that use an ancient biological pathway known as the acetyl coenzyme-A biochemical pathway for autotrophic growth (the "Wood-Ljungdahl Pathway"). The Wood-Ljungdahl Pathway is the most energetically efficient carbon fixation pathway and enables our proprietary biocatalyst to transform the carbon and energy in gas streams into valuable products. In addition to being highly energy efficient, the Wood-Ljungdahl Pathway also allows high levels of dynamic flexibility in the composition of the gas streams (and therefore resources) that can be converted into valuable products. The pathway allows the LanzaTech process to use both CO₂ and CO as sources of carbon and H₂ and CO as sources of energy. The application of this pathway with this biocatalyst enables a significant range of sustainable, high volume, and globally available waste resources for commercial deployment and product manufacture.

Feedstock Diversity for Resilience

The current manufacture of essential goods results in an abundance of waste carbon in the form of polluting gases or solid wastes in the air, landfills, and waterways. The LanzaTech gas fermentation platform can utilize feedstocks ranging from CO to CO₂-rich waste streams, including industrial and refinery off-gas, reformed biogas, gasified biomass and MSW, and CO₂.

Abundant and Diverse Feedstocks



CO can provide both carbon and energy for our proprietary microbes. In contrast, CO₂ only provides carbon, which means a source of chemical energy, H₂, must be added for a CO₂ conversion. In a CO-rich stream, the microbe can make the H₂ it needs from water via a biological water gas shift reaction, creating CO waste streams of various compositions ideal for gas fermentation.

Waste carbon feedstocks generally have low cost, global availability with regional abundance, low carbon intensity, and are non-competitive with food production. If the entirety of the potential feedstocks could be accessed, up to 6.5 billion metric tons annually of gas fermentation products, primarily ethanol, could be produced.

Compared to other catalytic conversion processes, LanzaTech's gas fermentation process is uniquely tolerant to the inherent variability of waste gas composition, enabling a wide diversity of feedstocks and high variety of products. Upstream catalysis technology focuses on identification and removal of fermentation inhibitors before fermentation feedstock gases are introduced into the bioreactors. LanzaTech has developed and optimized its proprietary gas treatment system to remove more than four classes of fermentation inhibitors from the broad spectrum of feedstocks, gasified biomass to steel off-gasses, in a simple process that substantially decreases capital and operating expenses while providing increased flexibility.

Potential Feedstocks

The following feedstocks could be used with our platform technology:

Industrial Emissions

Steel, ferroalloy, or refinery off-gases are point-sourced. CO₂-rich off-gases, which are produced by the cement and sugar ethanol industries, can also be used to feed gas fermentation alongside a hydrogen source as explained in subsequent sections.

- *Steel*: Energy-intensive manufacturing processes, such as steel production, inevitably result in gaseous emissions, which cannot be stored and which are emitted by the steel maker. As an environmental liability rich in CO, these emissions are an ideal feedstock for our process. We have been working with these readily available, abundant gases since 2008.
- *Ferroalloy*: Ferroalloy gases are also rich in CO, making this another ideal emission source. We are developing projects using ferroalloy gases in target regions such as China, Norway and India.
- *Refining*: Certain refinery off-gases are ideal feedstocks for our process. A unique feature of processing refinery gases is that most of the carbon in the ethanol produced is derived directly from CO₂, rather than from CO. Oil and gas companies also have extensive experience producing and handling liquid fuels, gas processing, engineering, and chemical catalysis.

Solid Wastes and Reformed Landfill Gas

Biomass and agricultural residues offer the largest potential sources of feedstock for gasification. In contrast to other methods of converting biomass feedstocks into fuels, gasification and gas fermentation have the potential to utilize all carbon in the feedstock. This includes carbon contained in the natural polymer lignin, which is typically not accessible in current cellulosic biomass fermentation processes. Gasified non-recyclable MSW, mixed plastic waste, and reformed biogas such as landfill gas (“LFG”) are abundant waste streams that we believe are currently underutilized sources of carbon for conversion into CarbonSmart fuels, chemicals, and materials using our technology platform.

- Biomass: Biomass, such as agricultural and forestry residues, can be gasified into syngas. Syngas contains CO and H₂ and is well suited for our process. While higher in capital costs due to the addition of one or more gasifiers, these projects typically benefit from significant renewable policy incentives, and can be deployed as smaller modular systems.
- MSW and Refuse Derived Fuel (“RDF”): As with biomass, MSW and RDF can also be gasified into syngas for use in our process, which can accept unsorted waste, ideally with mechanically recyclable items removed. The current alternatives are landfilling or incineration, which are increasingly falling out of favor globally, and so waste management companies are seeking alternative sustainable solutions. These projects benefit from tipping fees, or fees generated by the disposal and processing of waste on a per ton basis, on the waste, and in certain locations, can be deployed as smaller modular systems.
- Reformed LFG: Only 32% of landfills in the United States collect methane, and the collection efficiency can range from 35% to 90% for modern landfills that do collect. As a result, landfills are responsible for more than 15% of the anthropogenic methane released in the U.S. Many landfills flare the LFG or operate older power generation units that emit large volumes of carcinogens and micro particles. LanzaTech believes it can utilize this gas stream. Capturing this feedstock for CarbonSmart materials has the potential to clean the air and improve human and environmental health surrounding landfills while reducing dependence on fresh fossil resources.
- As modern industries transition to more sustainable feedstocks, we believe industrial and refinery waste gases will ultimately transition as well. To enable this transition, LanzaTech is developing the ability to pivot to CO₂ from biorefineries and direct air capture (“DAC”) for continued, sustained, low carbon materials and fuels.

Future Proofing Feedstock Capability

CO₂ sourced from biorefineries, industrial emissions, and DAC technologies can be coupled with H₂ to produce products with extremely high carbon conversion efficiency of over 90% carbon utilization. Since H₂ can be produced from renewable power via water electrolysis (“green”) or by steam methane reforming with carbon capture (“blue”), the carbon footprint of the products made can be a fraction of that relative to petroleum refining (depending on the source of power in the case of electrolysis). As more hydrogen is present in the feedstock, more carbon is captured into the ethanol product. We believe CO₂ as a feedstock has the potential to disrupt the fuel and chemical supply chains by substituting CO₂ for conventional fossil resources. By developing and integrating these approaches, we believe our technology platform is positioned to take advantage of the expected continued price reductions and capacity increases for renewable electricity, maximizing utilization of CO₂ streams.

Integrating bioindustrial CO₂ and eventually DAC technologies with LanzaTech’s gas fermentation platform creates an opportunity for renewable fuel production from low-cost CO₂ feedstock. Integrating with LanzaJet’s Alcohol to Jet (“ATJ-SPK”) process can produce SAF from each of ethanol derived from CO₂ and H₂ produced by water electrolysis. DAC CO₂ to SAF is estimated to have a 94% emissions reduction when compared to the fossil counterpart at 94 g-CO₂e/MJ of ATJ-SPK.

Steel Industry Transition

LanzaTech’s gas fermentation technology can utilize the evolving off-gases from iron and steelmaking processes through the transition from carbon to hydrogen feedstocks. The LanzaTech system can remain in place, utilizing existing assets at iron and steel mills to take advantage of available hydrogen, coupled with carbon from other on-site sources including electric arc furnaces, or further transition to gasification of waste carbon resources (solid waste or biomass) or utilize direct air capture. We believe that our early investments in GHG emission reduction technology positions us to continue to be a leader in carbon recycling in other hard-to-abate sectors.

Technology Platform Development

Throughout our 18-year history, LanzaTech has consistently developed and scaled innovative gas fermentation technology solutions and is now deploying them commercially. Our team has designed and developed equipment necessary to enable the biocatalyst that functions in a 3-liter benchtop reactor to operate equivalently in a 750,000-liter fermentation reactor.



LanzaTech's gas fermentation process has been demonstrated at four sites with 50,000 hours of operation in the field using steel mill waste gases plus another 50,000 hours of operating in the field integrating gasification, gas treatment and gas fermentation. The success of these 100,000 hours of experience at pilot and demonstration scales led to the May 2018 startup of the first operating commercial gas fermentation facility in the world, at the Jingtang Steel Mill in Caofeidian in Hebei Province, China. A second commercial plant, the Shoulang Jiyuan plant in Ningxia, China, of the same capacity and utilizing ferroalloy off-gas come online in April 2021. A third commercial plant, the Ningxia Binze plant in Ningxia, China, with an annual capacity of 60,000 tons and utilizing ferroalloy off-gas, came online in September 2022. A fourth commercial plant, the Guizhou Jinze plant in China, with an annual capacity of 60,000 tons and utilizing ferroalloy off-gas, came online in June 2023. A fifth commercial plant, the Panipat Refinery plant in India, with an annual capacity of 33,500 tons and utilizing refinery off-gas, came online in September 2023. A sixth commercial plant, the Steelanol plant in Belgium, with an annual capacity of 64,000 tons and utilizing steel off-gas, came online in November 2023. Together these facilities have produced over 75 million gallons of fuel-grade ethanol and mitigated over 380,000 tons of CO₂. In addition to the six commercial plants operating globally, LanzaTech's partner in Canada is operating a demo-scale facility utilizing waste-based feedstocks like forestry residues and LanzaTech's partner in Japan is operating a 1/10th commercial-scale facility utilizing gasified unsorted municipal solid waste as a feedstock. These demo and 1/10th scale facilities completed construction in 2022 and are operating. There are 13 additional plants worldwide currently in various stages of advanced engineering development and dozens more in early stages of development. The 13 additional plants will use a mix of feedstocks including various industrial off-gases, gasified solids, CO₂ and H₂, and ethanol in instances where the plant will produce sustainable aviation fuel from the ATJ process.

LanzaTech is continuously developing and advancing its technology platform, and in late October 2022, announced that its next-generation bioreactor, currently utilized in a demonstration-scale facility in Alberta, Canada with partner Suncor, ran test campaigns for ethanol production on a wide range of waste-based feedstocks in 2022. This next generation bioreactor is expected to improve the economic viability of LanzaTech's integrated biorefinery offering. The demonstration-scale facility has produced ethanol in test runs since July 2022 and recently has begun full operations, converting waste-based feedstocks, including municipal waste and forestry-residues, into ethanol.

Applications of Our Technology Platform

Overview

Our technology platform enables companies around the world to generate revenue from transformed carbon in waste resources. Across the supply chain, we promote a CarbonSmart circular economy, where both resource providers and end users can choose to be carbon-efficient by recycling or “locking” carbon into new products rather than making them from new fossil resources. Current and proposed applications of our technology platform include ethanol products, which can serve as the chemical building blocks for consumer goods, such as household cleaners and sustainable fuels, including sustainable aviation fuel, as well as protein products, that can be used as animal/fish feed and fertilizer. These applications are discussed further below.

To date we have partnered with several consumer-facing companies to demonstrate the market value of our CarbonSmart products. This includes leveraging our technology to make the chemical intermediates for the production of a new range of cleaning products, packaging for cosmetics, fibers for clothing, and as an input for fragrances. The ethanol used in these first CarbonSmart products originates in China at our commercial facilities, but we expect that over the longer term, the input ethanol will be made in our facilities across the globe.

Ethanol Products

Our customers and partners already have used our technology platform to produce ethanol, ethanol derivatives and ethanol co-products from steel mills, ferroalloy plants, and refineries, as well as gasified biomass and municipal waste.

To date, LanzaTech has produced over 1,000 metric tons of finished CarbonSmart products for consumer brands. Examples of CarbonSmart product launches are as follows:

- Purified ethanol in home cleaning products: LanzaTech’s purified ethanol from steel mill off gas is utilized in a line of household cleaners.
- Purified ethanol in fine fragrances: High purity ethanol is one of the major ingredients in fine fragrances. LanzaTech’s high purity ethanol will be used in one of the world’s largest fragrance and beauty company’s fragrance formulations.
- Ethanol as a feedstock for polyethylene production: LanzaTech ethanol was utilized for conversion to ethylene and then polyethylene, for use in manufacturing the world’s first cosmetic bottle from steel mill emissions.
- Ethanol as a feedstock for surfactant production: LanzaTech’s partner launched a line of laundry detergents utilizing CarbonSmart ethanol as input for surfactants production.
- Ethanol as a feedstock for polyester production: LanzaTech ethanol was utilized for conversion to ethylene and then monoethylene glycol (MEG) a building block for PET production. This was used to make yarns and fabric for lululemon and Zara apparel collections.

As of the date of this Annual Report, 13 facilities are in advanced engineering utilizing our technology, as outlined in the graphic in the section titled “Business — Market Opportunity — Overview.” The first commercial facility to use our technology was the Shougang Joint Venture in 2018, a joint venture between us and Shougang Group and TangMing formed in 2011. This gas fermentation plant was the world’s first commercial facility to convert industrial emissions into sustainable ethanol. This plant has an annual production capacity of approximately 46,000 tons of ethanol.

Sustainable Aviation Fuel Products

Ethanol produced by us can be blended into road transport fuels or can be converted through the LanzaJet™ ATJ process to an ethanol-based ATJ-SPK and to sustainable diesel, both of which can be blended with their fossil equivalents. LanzaJet ATJ-SPK from our ethanol can demonstrate up to 80% GHG reduction compared to fossil alternatives depending on circumstances, including feedstock, geography and methodology. ATJ-SPK is qualified for use at up to a 50% blend level with conventional jet fuel for all commercial flights. This process is poised for commercial deployment. The process has a high potential jet yield of approximately 90%.

Our first ATJ demonstration unit produced approximately 4,000 gallons of jet fuel and 600 gallons of diesel fuel. A portion of this fuel was used to power a commercial passenger 747-jet flight operated by Virgin Atlantic from Orlando, Florida to London, UK in 2018. The fuel was also used for a 2019 Trans-Pacific flight to deliver a new Boeing aircraft to All Nippon Airways in Tokyo from Everett, Washington.

We have designed our technology platform to convert ethanol to SAF, which is of strategic importance to airlines for meeting their commitments to reduce emissions.

LanzaJet

With the goal of accelerating commercialization of the ATJ process, we helped launch LanzaJet in June 2020 and became shareholders along with Suncor and Mitsui, with British Airways and Shell joining as shareholders in 2021. LanzaJet received financing from the Microsoft Climate Fund in 2022. We currently hold approximately 23% stake in LanzaJet and account for our investment as an equity method investment because we do not control LanzaJet. Mitsui, Suncor, British Airways and Shell have committed, subject to certain conditions, to invest a total of up to \$165 million. This first facility which will produce 10 million gallons of sustainable fuels was inaugurated in early 2024, and LanzaJet expects to begin production in 2024. Pursuant to the LanzaJet License Agreement, we granted to LanzaJet a perpetual, worldwide, non-transferrable, irrevocable, royalty-free, sublicensable, exclusive license to certain patents related to the conversion of ethanol to fuel. This license is exclusive including as to us. The primary waste biomass to be used for ethanol feedstocks is cellulosic wastes from sugar cane or other agricultural activities in Brazil. Additional, longer-term waste-based biomass-derived feedstocks for SAF include waste starch slurry from conventional fermentation and biogas derived from biomass degradation in landfills. Waste-based industrial off-gases can also be used to produce ethanol as a feedstock for the process.

Construction of the plant, located at the LanzaTech Freedom Pines Biorefinery in Soperton, Georgia, was also supported by participation from All Nippon Airways and a US Department of Energy grant of \$14 million.

We anticipate LanzaJet's partners and investors to deploy numerous commercial ATJ facilities above the 10 million gallons per year capacity of the LanzaTech Freedom Pines Biorefinery. LanzaJet is currently working with partners to confirm project locations and solidify the appropriate project structures. Locations for these facilities include Asia, mainland Europe, the United Kingdom, the United States and Australia. We expect these facilities will be funded by LanzaJet shareholders as well as other sources, including government grants and loan guarantees depending on the project structure and partners, location, and other factors.

DRAGON

In September 2021, Project DRAGON (Decarbonising and Reimagining Aviation for the Goal of Net Zero) was formally initiated. This waste-to-SAF project received £3.15 million in grant funding from the UK Secretary of State for Transport (the "UK Authority") Green Fuels Green Skies program and £1 million from Innovate UK as part of the South Wales Industrial Cluster deployment program. LanzaTech is responsible for front-end engineering design and associated project development activities for the UK Authority to achieve a final investment decision for both the LanzaTech Gas Fermentation unit and the adjacent LanzaJet ATJ unit in Port Talbot, South Wales, United Kingdom. These activities, further supported in December 2022 by a £24.9 million grant from the UK Authority's Advanced Fuels Fund, are underway with a view to achieving a final investment decision in 2024 and full operations in 2026-2027 to produce 100 million liters per year of SAF for two major UK airlines. Overall the project is expected to play a significant role in meeting the UK government's target of 10% SAF by 2030, as well as resulting in significant carbon emissions reductions compared to fossil kerosene, and to also reduce emissions of particulate matter and sulfur.

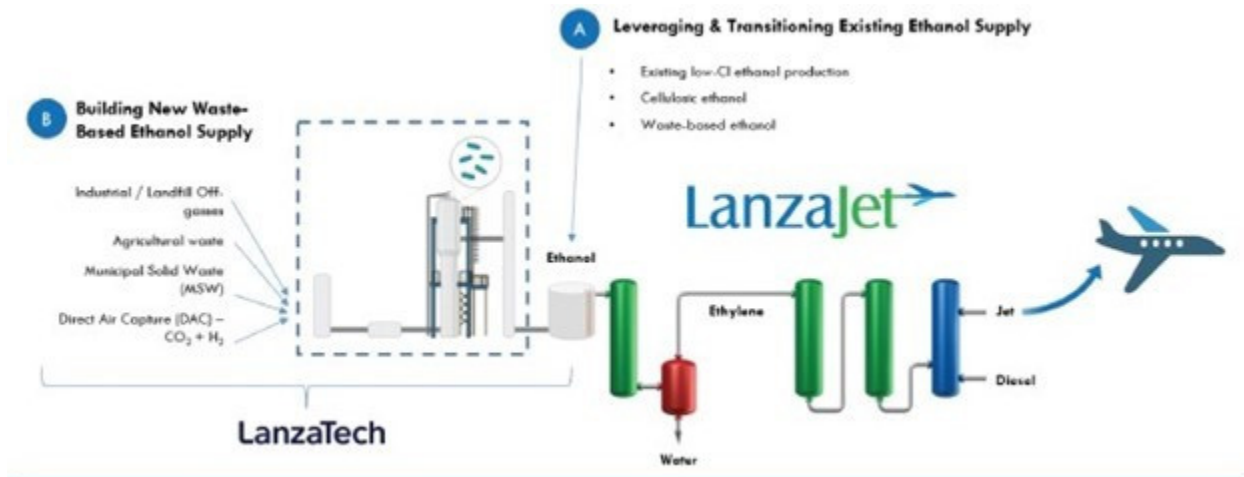
FLITE

In December 2020, the Fuel via Low Carbon Integrated Technology from Ethanol, or FLITE, project was formally initiated. This project received EUR 20 million in grant funding from the EU Horizon 2020. LanzaTech is responsible for plant design, construction and operations using LanzaJet's ATJ technology. Project development has been initiated and we expect the FLITE facility to produce SAF using waste-based ethanol sourced from multiple European producers. In addition, the SAF expected to be produced at the facility is anticipated to result in a significant carbon emission reduction relative to fossil kerosene and to also reduce emissions of particulate matter and sulfur.

LanzaJet's ATJ technology is leveraging existing low-carbon intensity ethanol and is enabling a transition to new sources of waste-based ethanol.

Project LOTUS

In September 2021, SkyNRG Americas in partnership with LanzaTech was awarded \$1 million in funding for Project LOTUS (Landfill Off-gas To Ultra-low carbon intensity SAF) to design, build, operate, and maintain a production facility that will convert raw LFG into SAF. The project is expected to leverage green hydrogen and LanzaTech's gas fermentation technology to convert LFG to ethanol at an operating landfill. The ethanol will be converted to SAF using the LanzaJet ATJ technology developed by LanzaTech and Pacific Northwest National Laboratory and subsequently licensed to LanzaJet. SkyNRG Americas has numerous contractual partners, including Boeing and Alaska Airlines, who are committed to advancing use of SAF in flight.



We believe Project LOTUS has the potential to provide a new U.S.-produced regional supply chain for producing SAF that meets international ASTM specifications while reducing methane emissions and improving air quality. The SAF is expected to be high quality, low soot forming, and sustainably derived, with the potential to reduce up to 110% of GHG emissions over traditional jet fuels. The \$1 million in funding from the Department of Energy, awarded in September 2021, is expected to accelerate the commercial rollout of this SAF production path from LFG by reducing the technical and financial risks for future integrated commercial plants across the United States.

Protein Products

An additional application of our technology platform is the production of protein products, either as a primary product from lysed, spent microbes from commercial facilities using LanzaTech's technology. Microbial protein, composed of lysed, spent microbes also contains other valuable nutrients. These microbes have performed the task of gas fermentation, have been extracted from the relevant commercial unit and are no longer viable for fermentation. These materials can be extracted and used in numerous applications, including feed products for livestock and fish, fertilizers for agricultural applications, and protein extract-based products. Shougang LanzaTech (also referred to as "SGLT" herein) is currently selling residual microbial protein as a component in fish and livestock feed products. Many of these markets are large and diverse, with stakeholders actively seeking sustainable and nutritious inputs. We believe our technology offers improved overall plant economics and environmental performance.

Significant composition testing on LanzaTech microbial protein has already been completed and detailed materials characterizations have been developed. These tests have shown that LanzaTech microbial protein products produced as a co-product of the fermentation process, contain very high protein content, typically exceeding 85 weight percent of the overall material mass. In addition, this type of microbial protein product for fertilizer and feed applications contains high concentrations of B vitamins and other minerals. These materials are beneficial in certain end-use applications such as animal feeds.

We believe that animal feed is the most profitable application for microbial protein. Fertilizer and biogas applications currently provide alternatives where feed applications are impractical. The nearest term applications for LanzaTech microbial protein include:

Animal/Fish Feed

Using LanzaTech microbial protein as a key ingredient in fish and animal feed represents a significant opportunity for LanzaTech. Global fishmeal production alone is six to seven million tons annually. Separation and drying of microbial protein for feed applications is similar to that of fertilizers, leading to potentially higher margins for LanzaTech and its customers. Studies have demonstrated that LanzaTech microbial protein produced from spent microbes, is effective as a partial replacement for fish meal and corn gluten meal in Atlantic Salmon at levels up to 15 weight percent in the diet. Nutrient digestibility and safety were demonstrated up to 30 weight percent in feed. Depending on region, regulatory approval may be required prior to marketing. Also, sufficient feed gas treatment is required for feed applications to ensure any detrimental gas contaminants do not enter the food chain.

Fertilizer

The global fertilizer market is roughly \$150 billion and consists of approximately 187 million tons of materials sold annually. Fertilizer products draw widely different prices based on their compositions and availability. LanzaTech believes that its microbial protein has strong potential as a fertilizer that is easy to apply and low maintenance. Use as a fertilizer may require regional or local approval.

Biogas

In some markets, including the European Union, it is economically advantageous to anaerobically digest the residual microbial protein to produce biogas. This biogas can be used in a cogen unit to produce power, steam, and hot water for use in the industrial facility. In regions where there are strong government incentives promoting biogas production, this may be a profitable use of residual microbial protein.

Synthetic Biology and Chemical Products

Through our synthetic biology platform we can develop new microbes to produce additional chemical products. Our platform technology enables rapid scale-up of new microbes once they are developed. Beyond ethanol, we have demonstrated the ability to produce ethylene, isopropanol, and acetone directly from gases.

In 2022, we demonstrated direct continuous production of ethylene from CO₂, creating a new non-fossil fuel pathway to this widely used commodity chemical. With a projected global market value of \$170 billion by 2030, ethylene is widely used in the chemical industry, and its worldwide production capacity (estimated over 200 million tons per annum in 2021) is one of the largest of any chemical. Using oil or natural gas as feedstock, petrochemical plants use the cracking process to extract ethylene, which is then transformed into chemical compounds and plastics, which manufacturers use to produce many of the products used every day, including:

- Polyethylene (Plastics) – used to make food packaging, bottles, bags, and other plastics-based goods.
- Ethylene Oxide / Ethylene Glycol – can become polyester for textiles, as well as antifreeze for airplane engines and wings.
- Ethylene Dichloride – this, in turn, can become a vinyl product used in PVC pipes, siding, medical devices, and clothing.
- Styrene – synthetic rubber found in tires, as well as foam insulation.

LanzaTech has previously produced ethylene via the indirect ethanol pathway, taking ethanol produced from carbon emissions and then converting this ethanol to ethylene. This latest development bypasses the conversion step, making the process less energy intensive and more efficient. With this, LanzaTech estimates that the ability to directly produce ethylene from a waste feedstock will offer a lower cost and lower carbon product, which is anticipated to enable greater market penetration than via the indirect ethanol pathway.

LanzaTech is scaling up the process to make these molecules. We have provided high-purity fermentation products (e.g. ethanol) and upgraded products (e.g., PET) to over 20 customers. Because this capability is unique to gas fermenting microbes, we have several collaborations with end users targeting the production of new molecules.

LanzaTech has achieved the direct synthesis of over 50 target products, molecules spanning from two-carbon up to 20+ carbon molecules and varying functional classes. LanzaTech has also demonstrated control over stereospecificity of the molecules, as well as the production of entirely novel compounds that cannot be produced in nature. In addition, LanzaTech has identified over 500 pathways for the production of an extensive spectrum of molecules using our proprietary predictive

microbial modelling capability. Computer modelling simulations confirm the feasibility of producing these molecules from gas while providing accurate projections of achievable yields and therefore the economic case for each. Direct production of chemicals that today are produced via the ethanol conversion pathway, will make the process less energy intensive and more efficient. With this, LanzaTech estimates that the ability to directly produce chemicals from a waste feedstock will offer a lower cost and lower carbon product which will enable greater market penetration than via the indirect ethanol pathway.

We believe that our demonstrated ability to genetically modify our proprietary gas-fermenting microbe acetogen *Clostridium autoethanogenum*, is a competitive differentiator. While in recent years a number of rudimentary tools for gas fermenting organisms have been described in the public domain, these have low efficiency and are not amenable for use in high-throughput workflows. We have developed a complete suite of high-throughput capabilities essential for development of optimized production strains or application of iterative, machine learning-based screening strategies employed by the pharmaceutical or natural product industries. Specifically, we have assembled a fully automated strain fabrication facility capable of designing, engineering and delivering several thousand genetically re-programmed strains per month. This “*BioFab*” facility leverages the advanced computational biology, characterized libraries of genetic regulators, as well as tools and protocols to enable precise and predictable genetic re-programming of our proprietary gas-fermenting microbe. The combination of the capabilities and technologies that comprise the BioFab were developed in-house and are proprietary to us. Data from iterative cycles of design, construction, and analysis of engineered microbial strains within the BioFab is captured computationally and used to further refine our genetic modelling and strain design programs. Thus, over time these models and programs become increasingly accurate, minimizing the time required to deliver new commercial strains producing valuable chemical products.

We believe we can further expand our product portfolio through the industrial microbiology capabilities we have pioneered and use our technology to produce high-value chemical intermediates used to make materials such as acrylics, fibers, plastics, and synthetic rubber. In the future, once fully developed, we believe these new microbes will have the potential to be dropped into any existing industrial gas fermentation facility to make new products from established transformed carbon feedstocks, in many cases leading to carbon capture and sequestration in consumer goods. We believe synthetic biology could enable the production of a wide variety of chemicals including alcohols, acids, esters, and ketones.

Competition

We compete in industries characterized by rapidly advancing technologies and a complex intellectual property landscape. We face competition from many different sources, including companies that enjoy competitive advantages over us, such as greater financial, research and development, manufacturing, personnel and marketing resources, greater brand recognition, and more experience and expertise.

While we do not believe we have any direct competitors, there are some companies with alignment in feedstock usage, products, synthetic biology, process design or commercial scale. While competing companies may be able to deliver some of these capabilities, we believe that no other company can currently deliver all of them in an integrated way.

These competitors may introduce competing products without our prior knowledge and without our ability to take preemptive measures in anticipation of their commercial launch. Competition may increase further as a result of greater availability of capital for investment and increased interest in our industry as more companies seek to facilitate the development of a carbon circular economy.

Intellectual Property

LanzaTech is a technology company which protects its intellectual property across an entire platform through a combination of trade secrets, confidential information, patents, trademarks, copyrights, nondisclosure agreements, material transfer agreements, employee agreements, and strong intellectual property and confidentiality clauses in collaboration and other agreements. We do not consider any individual patent, patent family or trademark to be material to our overall business.

Patents

As of December 31, 2023, we had owned or in-licensed 1473 granted patents globally and 634 pending patent applications globally reflecting 155 patent families. We have filed patent applications continuously every year from 2007 to 2023, demonstrating continued innovation and establishing a steady patent estate viewed from a patent term perspective. As earlier filed patents reach their 20-year patent term, later filed patents remain enforceable thus providing a rolling patent estate of enforceable patents. Our patent estate is global in nature with patents or patent applications in over 50 individual countries and several pending applications in the International Patent System established by The Patent Cooperation Treaty.

Trade Secrets and Confidential Information

We have a large body of intellectual property that is maintained, not as patents, but as trade secrets and confidential information. Such intellectual property is protected by appropriate measures to maintain the secrecy and confidentiality of the intellectual property, including for example, contractual measures with confidentiality and security obligations, physical security measures and digital security measures.

Trademarks

We maintain trademark rights and registrations in its name and brands in several global jurisdictions. Examples include “LanzaTech” and “CarbonSmart.”

This document contains references to trademarks, trade names and service marks belonging to us and to other entities. Solely for convenience, trademarks, trade names and service marks referred to in this Annual Report may appear without the ® or TM symbols, but such references are not intended to indicate, in any way, that the applicable mark holder will not assert, to the fullest extent under applicable law, its rights to these trademarks and trade names. We do not intend our use or display of other companies’ trade names, trademarks or service marks to necessarily imply a relationship with, or endorsement or sponsorship of us by, any other companies.

Domains

We have registered a number of domain names for website used in our business. For example, we have registered the domain name for “LanzaTech.com.”

Intellectual Property Overview and Risks

Most of our intellectual property assets were developed and are owned solely by us, a few have been developed via collaboration, some of which are jointly owned with third parties, and a small number have been acquired or licensed from third parties. We expect that we will continue to make additional patent application filings and that we will continue to pursue opportunities to acquire and license additional intellectual property assets, technologies, platforms or products as developments arise or are identified.

Regardless, we cannot be certain that any of the patent filings or other intellectual property rights that we have pursued or obtained will provide the protection we seek. Our future commercial success depends, in part, on our ability to obtain and maintain patent and other proprietary protection for commercially important technology, inventions and know-how related to our business; defend and enforce our patents and other intellectual property; preserve the confidentiality of our trade secrets; and operate without infringing, misappropriating or violating the valid and enforceable patents and other intellectual property rights of third parties. Our ability to stop third parties from making, using, selling, offering to sell or importing our products may depend on the extent to which we have rights under valid and enforceable patents, trade secrets or other intellectual property rights that cover these activities. With respect to both our owned and licensed intellectual property, we cannot be sure that patents will issue with respect to any of the owned or licensed pending patent applications or with respect to any patent applications that we, our co-owners or our licensors may file in the future, nor can we be sure that any of our owned or licensed patents or any patents that may be issued in the future to us or our licensors will be commercially useful in protecting any products that we ultimately attempt to commercialize, or any method of making or using such products.

Under the “march-in” provisions of the Bayh-Dole Act, the government may have the right under limited circumstances to require us to grant exclusive, partially exclusive or non-exclusive rights to third parties under any intellectual property discovered through the government-funded programs. March-in rights can be triggered if the government determines that we have failed to work sufficiently towards achieving practical application of a technology or if action is necessary to alleviate health or safety needs, to meet requirements for public use specified by federal regulations or to give preference to U.S. industry. Specifically, certain of our granted and pending patents that cover recombinant and other microorganisms, cell-free protein synthesis platforms, protein expression vectors, fermentative production pathways, and microbial and ethanol conversion pathways may be subject to march-in-rights. These patents account for less than one percent of our granted and pending patents.

Key Collaboration Agreements

License Agreement with Battelle Memorial Institute

In September 2018, we entered into a license agreement with Battelle, which was subsequently amended in January and April 2020 (as amended, the “Battelle License Agreement”). Under the Battelle License Agreement, Battelle granted to us an exclusive sublicensable commercial license to certain patents related to the conversion of ethanol to fuels (the “Battelle patent rights”).

Under the Battelle License Agreement, certain development milestones must be met, including completion of basic engineering for a commercial project and production of product at the Freedom Pines facility within 4 years and 3 years, respectively, from completion of certain DOE required technical milestones at the Freedom Pines facility. The agreement also requires that any products manufactured using the Battelle patent rights and sold within the United States will be substantially manufactured in the United States. Battelle retains the right to practice or license the Battelle patents to nonprofit institutions for research, development, or demonstration purposes. We licensed our rights and obligations under the Battelle License Agreement exclusively to LanzaJet. As such, we may only exercise these rights through a sublicense from LanzaJet.

In connection with our entry into the Battelle License Agreement, we paid an initial fee of \$5,000 and agreed to pay Battelle a royalty of less than one percent of net sales of products involving the Battelle patent rights and a 10% royalty on all sublicense revenues and royalties. As of the date of this Annual Report, we have not been required to make any royalty payments under the Battelle License Agreement.

The Battelle License Agreement remains effective until the last of the Battelle patent rights expires, is abandoned or is adjudicated invalid, unless the agreement is earlier terminated. The last of the Battelle patent rights are currently scheduled to expire in approximately October 2035. Battelle may terminate the agreement if we become insolvent or if we fail to meet certain reporting or payment requirements under the agreement. Battelle may also terminate the agreement or convert the license into a non-exclusive license if we fail to reach certain of the above mentioned development milestones within the applicable time periods. We may terminate the Battelle License Agreement upon 60 days' prior notice to Battelle, and either party may terminate the agreement if the other party breaches the agreement and fails to cure such breach after 60 days' notice. We agreed to indemnify Battelle against certain third-party claims related to the Battelle patents.

LanzaJet Agreements

LanzaJet Amended and Restated Investment Agreement

On April 1, 2021, we entered into an amended and restated investment agreement with LanzaJet, Mitsui, Suncor, British Airways and Shell. We refer to this agreement as the "LanzaJet Investment Agreement." The LanzaJet Investment Agreement was entered into in order to facilitate the production of SAF by designing, constructing and operating a demonstration facility located at the LanzaTech Freedom Pines Biorefinery in Soperton, Georgia (the "LanzaJet Freedom Pines Demonstration Facility"), and to determine the feasibility of developing additional potential facilities for commercial scale production of fuel.

Under the LanzaJet Investment Agreement, we received shares of common stock of LanzaJet ("LanzaJet shares"), in exchange for a license to our rights and obligations under the Battelle License Agreement (discussed further below under "License Agreement with LanzaJet"). Pursuant to the LanzaJet Investment Agreement, Mitsui, Shell, British Airways and Suncor each contributed an initial cash investment in exchange for shares of common stock of LanzaJet.

Each of Mitsui, Shell, British Airways and Suncor agreed to make an additional cash investment following the achievement of certain development milestones relating to the demonstration facility, which payments we refer to as second tranche investments. If made, the second tranche investments would fund the development and operation of commercial facilities by Mitsui, Shell, British Airways and Suncor, respectively. These commercial facilities would sublicense the relevant fuel production technology from LanzaJet. Upon the closing of each of the first three of these second tranche investments and no later than the sublicensing of the relevant facility, LanzaJet is required to issue additional LanzaJet shares to us. We currently hold approximately 23% of the outstanding shares of LanzaJet. Upon the issuance of additional shares to us in connection with the closing of each of the first three potential second tranche investments, we would hold approximately 40%, 50% and 57% of the outstanding shares of LanzaJet, respectively. Unless and until two second tranche investments are made and assuming none of the employee equity incentive pool is issued as shares, LanzaJet undertakes an initial public offering or a sale of LanzaJet occurs under certain circumstances, we would remain a minority shareholder of LanzaJet.

The LanzaJet Investment Agreement may be terminated by the mutual consent of the parties at any time or automatically as to the second tranche obligations of any party if LanzaJet has not called for such party to make a second tranche investment by December 31, 2025. Each party to the LanzaJet Investment Agreement agreed to indemnify the other parties for all claims arising from such party's breach of the agreement or from fraud, gross negligence, or willful misconduct with regard to the agreement.

License Agreement with LanzaJet

In May 2020, in connection with the LanzaJet Investment Agreement, we entered into the LanzaJet License Agreement. Under the LanzaJet License Agreement, we granted to LanzaJet a perpetual, worldwide, non-transferrable, irrevocable, royalty-free, sublicensable, exclusive license to all of our intellectual property rights under the Battelle License Agreement, as well as other intellectual property owned by us relating to the conversion of ethanol to fuels. LanzaJet assumed all of our obligations under the Battelle License Agreement, including development, reporting, royalty payment and sublicensing obligations. LanzaJet assumed all of our rights under the Battelle License Agreement except for our rights, in certain circumstances, to terminate the agreement, to amend the agreement or to assign our rights thereunder, provided that we may not exercise these rights without LanzaJet's prior consent.

The license granted by us to LanzaJet is exclusive, including as against us, with the exception of certain development projects we are undertaking in collaboration with the U.S. Department of Energy or pursuant to certain grants from the U.S. Department of Energy, for which LanzaJet granted us a worldwide, non-transferable, non-sublicensable, non-exclusive, royalty-free sublicense to the relevant intellectual property rights. LanzaJet also agreed to grant us a non-exclusive sublicense at most-favored nation pricing to fulfill certain pre-existing SAF obligations if we are unable to fulfill these obligations through other off-take agreements.

The LanzaJet License Agreement has an indefinite term. If LanzaJet fails to perform its obligations under the Battelle License Agreement, we may continue to perform our obligations under such agreement. LanzaJet may terminate the LanzaJet License Agreement immediately upon notice to us if a material portion of the licensed subject matter is determined by a court to be invalid. We may terminate the agreement upon 30 days' written notice if LanzaJet materially breaches the agreement and fails to cure after receiving notice of the breach. If certain commercial facility development milestones are not met under the LanzaJet Investment Agreement, we may terminate the LanzaJet License Agreement and after such termination, the agreement will survive solely with respect to the LanzaJet Freedom Pines Demonstration Facility. If the agreement is terminated for any other reason, LanzaJet's license will cease immediately but any sublicenses granted by LanzaJet prior to termination of the agreement will survive, subject to their terms. We and LanzaJet agreed to indemnify the other against certain third-party claims.

LanzaJet Amended and Restated Stockholders' Agreement

In connection with the LanzaJet Investment Agreement, on April 1, 2021, we entered into an amended and restated stockholders' agreement with LanzaJet, Shell, Mitsui, British Airways and Suncor (the "LanzaJet Stockholders' Agreement"). Under the LanzaJet Stockholders' Agreement, each party is required to hold and vote its shares of LanzaJet stock to ensure that LanzaJet's board of directors (the "LanzaJet board") is composed of eight directors: one designee from each of British Airways, Mitsui, Suncor and Shell, two LanzaTech designees (one of which will be the chairperson), LanzaJet's chief executive officer, and one independent director. Each party must hold a certain number of shares of LanzaJet common stock in order to maintain their respective designated board seats. Pursuant to the agreement, if a party votes to remove its designated director from the LanzaJet board, the other parties must also vote in favor of removal. If a party fails to comply with its obligations under the second tranche investments provided for in the LanzaJet Investment Agreement, the other parties may vote to remove that party's designee, and such party will forfeit its designated LanzaJet board seat in exchange for the right to designate a non-voting observer to the LanzaJet board.

The agreement also provides that the parties must vote their shares in favor of a proposed change of control transaction and take all reasonable steps necessary to execute the transaction if it meets certain standards and is approved by us, the LanzaJet board, and any investor holding a certain number of LanzaJet shares.

The parties to the LanzaJet Stockholders' Agreement may not transfer their LanzaJet shares until 2026, except for permitted transfers to affiliates. LanzaJet has a right of first refusal with regard to all transfers of LanzaJet shares to third parties and if LanzaJet declines to exercise this right, the other parties to the agreement are entitled to a pro rata right of first refusal. We and the other parties will also have a pro rata right of first refusal with regard to new LanzaJet shares issued as well as a put right with respect to LanzaJet shares that we and such parties hold upon the occurrence of certain conditions. The LanzaJet Stockholders' Agreement also provides registration rights in connection with an initial public offering of or other registration of LanzaJet shares.

Each party to the LanzaJet Stockholders' Agreement agrees to indemnify the other parties for all claims arising from such party's breach of the agreement or from fraud, gross negligence, or willful misconduct with regard to the agreement. The LanzaJet Stockholders' Agreement will terminate either with the consent of all of the parties or upon an initial public offering of LanzaJet shares or a specified liquidation event.

LanzaJet Note Purchase Agreement

On November 9, 2022, we and the other LanzaJet shareholders entered into the LanzaJet Note Purchase Agreement, pursuant to which FPF, a wholly owned subsidiary of LanzaJet, will issue, from time to time, notes in an aggregate principal amount of up to \$147.0 million (the “LanzaJet Notes”), comprised of approximately \$113.5 million aggregate principal amount of 6.00% Senior Secured Notes due December 31, 2043 and \$33.5 million aggregate principal amount of 6.00% Subordinated Secured Notes due December 31, 2043. We committed to purchase \$5.5 million of Subordinated Secured Notes in a funding which occurred on May 1, 2023. The Senior Secured Notes are secured by a security interest over substantially all assets of FPF, and both the Senior Secured Notes and the Subordinated Secured Notes are secured by a security interest over all intellectual property owned or in-licensed by LanzaJet. LanzaJet also provides a guarantee of any costs and expenses required to complete the LanzaJet Freedom Pines Demonstration Facility and achieve commercial operation.

Each purchaser of LanzaJet Notes under the LanzaJet Note Purchase Agreement is also entitled to receive a warrant for the right to purchase 575 shares of common stock of LanzaJet for each \$10,000 of LanzaJet Notes purchased by such purchaser. On May 1, 2023, we received warrants to purchase 316,250 shares of common stock of LanzaJet for an exercise price of \$0.01 per share in connection with our purchase of \$5.5 million of LanzaJet Notes.

Under the LanzaJet Note Purchase Agreement, FPF must provide periodic progress reports and financial information to the noteholders, in addition to providing notice of certain significant events. Additionally, FPF is restricted from undertaking certain transactions or making certain restricted payments while the LanzaJet Notes are outstanding. The LanzaJet Note Purchase Agreement may be amended with the approval of FPF and all noteholders. Upon an event of default under the Note Purchase Agreement, each purchaser may accelerate its own LanzaJet Notes. Enforcement against the collateral securing the LanzaJet Notes requires the approval of certain holders as specified in the LanzaJet Notes. Under the LanzaJet Note Purchase Agreement, FPF has agreed to indemnify the noteholders for certain liabilities.

Mitsui Alliance Agreement

On February 15, 2022, we entered into an amended and restated collaboration agreement with Mitsui which was further amended on March 24, 2022 and October 2, 2022 (as amended, the “Mitsui Alliance Agreement”). Under the Mitsui Alliance Agreement, Mitsui must use commercially reasonable efforts to promote our gasification, waste-to-ethanol and CarbonSmart technology and establish commercial facilities using this technology in Japan. In exchange, we agreed to exclusively promote and designate Mitsui as our preferred provider of investment and off-take services worldwide, as well as our preferred provider of engineering, procurement and construction services in Japan, subject to exceptions for certain of our existing commercial partnerships that allow us to recommend Brookfield as a provider of investment services in specified circumstances, including the Brookfield Framework Agreement. We and Mitsui agreed to share prospective customer information and to structure package offerings of our combined services through either a joint venture or royalty payment structure.

Under the Mitsui Alliance Agreement, we may not recommend any alternative provider of the aforementioned services without the advance written consent of Mitsui. In addition, we agreed to provide Mitsui with the right to first offer its services to any customer who requires or requests these services. We must obtain written consent from Mitsui before soliciting customers or marketing or recommending our waste-to-ethanol technology in Japan.

The Mitsui Alliance Agreement may be terminated by Mitsui without cause with three months’ notice. The agreement may be terminated by us or Mitsui if the other party becomes insolvent or if the agreement is materially breached and the breaching party fails to cure within 30 days after receiving notice of the breach. We and Mitsui have agreed to indemnify each other against certain third-party claims.

Shougang Joint Venture

Articles of Association of Beijing Shougang LanzaTech Technology Co., Ltd

Through our subsidiary LanzaTech Hong Kong Limited, a limited liability company organized in Hong Kong, we hold approximately 9.3% of the outstanding shares of Beijing Shougang LanzaTech Technology Co., Ltd (the “Shougang Joint Venture”) as a result of our contribution of certain intellectual property rights (see “ — *Shougang Joint Venture License Agreement*” below). Our rights and responsibilities as a holder of such shares are set forth in the Shougang Joint Venture’s Articles of Association, effective in November 2021. Because our shares were issued before an initial public offering of the Shougang Joint Venture, our shares may not be transferred within one year from the date on which the Shougang Joint Venture’s shares are publicly listed. The Shougang Joint Venture has an indefinite duration.

At the general meeting of shareholders of the Shougang Joint Venture, shareholders have the authority to determine the Shougang Joint Venture's business plan, elect and replace directors, increase or decrease the registered capital of the Shougang Joint Venture, amend the Shougang Joint Venture, dissolve the Shougang Joint Venture, and approve certain transactions, among other functions. As a holder of more than 3% of the shares of the Shougang Joint Venture, we have the right to submit proposals to the Shougang Joint Venture at general meetings.

Except as otherwise provided, and in accordance with accounting provisions of the Shougang Joint Venture, when a distribution of Shougang Joint Venture profits is approved, the Shougang Joint Venture's after-tax profits are distributed in proportion to the shares held by shareholders. In the event of a liquidation, the Shougang Joint Venture's property must be distributed in proportion to the shares held by shareholders after liquidation expenses, wages of employees, statutory compensation, owed tax and Shougang Joint Venture debts are paid. If we object to a resolution on merger and division of the Shougang Joint Venture, we can request the Shougang Joint Venture acquire our shares.

Shougang Joint Venture Letter Agreement

On November 3, 2021, LanzaTech Hong Kong Limited entered into a side letter of agreement (the "Shougang Joint Venture Letter Agreement") with the Shougang Joint Venture and Mitsui. The Shougang Joint Venture Letter Agreement sets forth the parties' mutual understanding that if the Shougang Joint Venture decides not to pursue an initial public offering of its securities in China or if an initial public offering does not take place by the end of 2024, the Shougang Joint Venture will make commercially reasonable efforts and discuss in good faith with shareholders the possibility of restoring certain provisions from a previous version of the Shougang Joint Venture Articles, including provisions granting shareholders rights to financial records, board composition provisions, and provisions requiring unanimous consent of the board to make certain decisions.

Shougang Joint Venture License Agreement

On September 6, 2021, we entered into an Intellectual Property Rights License Agreement with the Shougang Joint Venture, which was subsequently amended in August 2023 (as amended, the "Shougang Joint Venture License Agreement"). Under the Shougang Joint Venture License Agreement, we granted the Shougang Joint Venture a license to certain of our intellectual property rights, including certain patented fermentation processes, alcohol production processes, novel bacteria and trademarks. The license we granted to the Shougang Joint Venture is a non-transferable (except with our written consent), exclusive, sublicensable commercial license under the licensed subject matter, to utilize gas fermentation technology to produce ethanol and by-products at commercial facilities in China. The Shougang Joint Venture may sublicense its rights to third-party contractors acting on its behalf, subject to certain conditions.

In consideration for the licenses we granted to the Shougang Joint Venture, the Shougang Joint Venture agreed to pay us a royalty on a graduated scale from 8% to 20% of all sublicensing revenues become payable to the Shougang Joint Venture in connection with the establishment and sublicensing of certain commercial facilities by the Shougang Joint Venture after the first commercial facility. As of the date of this Annual Report, we have received approximately \$1,200 thousands in royalty payments from the Shougang Joint Venture pursuant to the Royalty Payment Plan, and corresponding to the fixed licensing consideration, calculated as a percentage of the maximum amount of royalties owed to SGLT from its sublicenses. Because our shareholding ratio in the Shougang Joint Venture has fallen below 10% due to a financing prior to the submission of an application by the Shougang Joint Venture for an initial public offering on a securities exchange in China, we have the right to request an adjustment to the royalty rates payable to us by the Shougang Joint Venture. This right will automatically terminate upon the submission of an application by the Shougang Joint Venture for an initial public offering on a securities exchange in China. If such application is subsequently terminated, our right to request an adjustment to the royalty rates will resume. The Shougang Joint Venture License Agreement provides that we will solely own all developed technology that results from, is based on, or uses the licensed subject matter in the operation of the Shougang Joint Venture, and all such technology will be subject to the license granted to the Shougang Joint Venture.

The Shougang Joint Venture has a right to cooperate with third parties regarding any commercial license under the licensed subject matter, subject to certain conditions. We agreed not to enter into any agreement with any third party preventing the Shougang Joint Venture's rights on the licensed subject matter in China. If the Shougang Joint Venture has not entered negotiations or signed an agreement with a third party for commencement of a project within a certain period of time, we will be free to engage with such third party ourselves.

Upon submission of an application by the Shougang Joint Venture for an initial public offering on a securities exchange in China, if we enter liquidation and as a result the Shougang Joint Venture License Agreement is terminated, the Shougang Joint Venture will be granted an option to call for an assignment of patents that are licensed pursuant to the agreement at that time, provided we first receive a written irrevocable, non-exclusive sublicense for the surviving term of such patents. If the

Shougang Joint Venture's application for an initial public offering is revoked or otherwise terminated, this call option will automatically become void. If the Shougang Joint Venture's right to the licensed subject matter is prohibited or restricted by operation of United States export controls, the Shougang Joint Venture has the right to continue to use the licensed subject matter as provided in the agreement. In such event, so long as the Shougang Joint Venture's continued use of the licensed subject matter complies with the agreement, we agreed not to initiate patent infringement claims against the Shougang Joint Venture.

The Shougang Joint Venture License Agreement will continue until the earlier of (a) the date the final licensed intellectual property right expires or terminates, (b) the date the last commercial facility is permanently decommissioned and (c) termination of the agreement. The agreement will terminate automatically in the event that the Shougang Joint Venture dissolves or is liquidated, institutes or actively participates in any action, suit or proceeding to invalidate or limit the scope of the licensed subject matter, or breaches certain provisions of the agreement. We may terminate the Shougang Joint Venture License Agreement upon default by the Shougang Joint Venture if the Shougang Joint Venture does not remedy the default within 60 days. We agreed to indemnify the Shougang Joint Venture, its affiliates and their current and former representatives from claims resulting from our material breach of the representations and warranties of the Shougang Joint Venture License Agreement. We have the first right to enforce and defend against infringement of the intellectual property licensed under the Shougang Joint Venture License Agreement and to recover any monetary compensation awarded in any litigation proceedings. If we fail to do so, the Shougang Joint Venture may enforce and defend the licensed intellectual property against infringement.

Letter Agreement with Sinopec

On April 12, 2021, we entered into a letter agreement with Sinopec and the Shougang Joint Venture (the "Sinopec Letter Agreement"). The parties to the Sinopec Letter Agreement agreed that the Shougang Joint Venture has exclusive rights to use our gas fermentation technology in commercial projects in China to produce fuel ethanol using steel mill and ferroalloy off-gas as described in the Shougang Joint Venture License Agreement. The Shougang Joint Venture agreed to notify Sinopec and us if it enters into a term sheet or equivalent preliminary agreement with respect to the use of our gas fermentation technology in commercial projects in China falling outside the scope of the Shougang Joint Venture License Agreement.

Sinopec and the Shougang Joint Venture have the right to cooperate with us on commercial projects outside the scope of the Shougang Joint Venture License Agreement and to provide technical and engineering services.

Joint Venture Agreement with Olayan Financing Company

On October 30, 2023 we entered into a joint venture agreement with Olayan Financing Company ("OFC" and such agreement, the "Olayan JV Agreement"). Under the Olayan JV Agreement, we agreed to exclusively partner with OFC on developing certain projects employing CCT technology in the Kingdom of Saudi Arabia and on a mutually agreed basis for certain projects employing CCT in the broader Middle East. The joint venture will deploy the LanzaTech gas fermentation process at commercial scale production facilities by way of direct project investments and/or technology licensing transactions. The joint venture will manage the offtake and/or marketing rights arising in respect of each project opportunity. The joint venture has the ability to explore other commercial production facilities in the Kingdom of Saudi Arabia and the broader territory as defined in the Olayan JV Agreement.

Grant Agreement with the European Climate, Infrastructure and Environment Executive Agency

Through our subsidiary LanzaTech BV, on October 7, 2020, we entered into a Grant Agreement (the "CINEA Grant Agreement") with the European Climate, Infrastructure and Environment Executive Agency (formerly the Innovation and Networks Executive Agency of the European Union) ("CINEA"), along with SkyNRG BV ("SkyNRG"), RSB Roundtable on Sustainable Biomaterials Association, E4tech (UK) Ltd and Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung E.V. The CINEA Grant Agreement provides for the award of a grant from CINEA to the parties to the CINEA Grant Agreement to fund the "Fuel via Low Carbon Integrated Technology from Ethanol" program, which we refer to as the FLITE program, to expand the supply of low carbon jet fuel in Europe by designing, building, and demonstrating an innovative ethanol-based ATJ technology in an ATJ Advanced Production Unit. Pursuant to the CINEA Grant Agreement, LanzaTech is responsible for plant design, construction and operations using ATJ technology.

The maximum grant amount under the CINEA Grant Agreement is EUR 20,000,000. The grant is applied to 100% of non-profit eligible costs and 70% of for-profit eligible costs.

Pursuant to the CINEA Grant Agreement, we own any intellectual property generated as a result of our participation in the program. If we do not protect, exploit and disseminate such intellectual property rights, to the extent reasonable and possible, CINEA may assume ownership thereof.

The parties must compensate CINEA for any damage it sustains as a result of the parties' implementation of the FLITE program or because the FLITE program was not implemented in full compliance with the CINEA Grant Agreement.

The participation of a party may be terminated by the coordinator of the CINEA Grant Agreement, designated as SkyNRG, upon request of the concerned party or on behalf of the other parties, subject to certain notice requirements and based upon reasons that must be approved by CINEA. CINEA may independently terminate the CINEA Grant Agreement or the participation of one or more parties in certain enumerated situations, including a party's change in financial or organization situation likely to affect the program, substantial errors or serious breach of obligations under the agreement, systemic errors or fraud in other similar agreements, and force majeure.

The agreement may be amended by request of any of the parties subject to the procedural guidelines therein. The agreement may be terminated by the parties with cause, or without cause subject to a potential reduction of the grant amount.

Agreements with Sekisui Chemical Co., Ltd.

Memorandum of Understanding with Sekisui

On June 20, 2018 we entered into a Memorandum of Understanding with Sekisui with respect to the business of producing ethanol converted by microbes from syngas generated from municipal solid waste, industrial solid waste, and other waste materials (the "Sekisui MOU").

Under the Sekisui MOU, we and Sekisui agreed to notify each other of any new projects or opportunities anywhere in the world relating to waste-to-ethanol production, to the extent legally permissible, and to inform relevant third parties of the other party's intent to participate in such new projects. If Sekisui notifies us of a business project in Japan, we agreed not to grant or license our technology or provide media, microbes, or technical support to the project without Sekisui's consent. Sekisui will manage developing and establishing appropriate structures related to the waste to ethanol production, collection of license fees, providing main and non-specialized technical support of operations, and media and microbe distribution following our manufacture thereof.

The Sekisui MOU expires on June 20, 2028, at which point we and Sekisui must engage in good faith discussions on whether to extend the term. We also must engage in good faith discussions to determine whether the Sekisui MOU should be terminated or amended if there is a substantial change for either party relating to the performance of or responsibility for waste to ethanol production, including changes in control or ownership of either party.

Sekisui Term Sheet

On February 21, 2020, we entered into a term sheet with Sekisui (the "Sekisui Term Sheet") in connection with the development of a waste-to-ethanol commercial facility. The Sekisui Term Sheet addresses the provision of engineering services by LanzaTech to the future operator of the commercial facility, and the granting of a license by LanzaTech to Sekisui for certain information, technology and intellectual property necessary to design, operate, and maintain the fermentation processes, microbes, and ethanol by-products of the commercial facility. The Sekisui Term Sheet governs the terms of operation of the first commercial facility and any future facilities contemplated under the Sekisui Memorandum, including with respect to performance targets and guarantees and engineering fees.

Under the Sekisui Term Sheet, we are expected to provide, sell or distribute microbes and trace media for the operation of the commercial facility for a fixed fee, subject to mutually agreed price adjustments for future facilities. For any additional facility that is constructed in accordance with the terms of the Sekisui Memorandum, we would not provide trace media or microbes without Sekisui's consent.

After a certain date, the fixed fee arrangement is expected to end and we expect to charge our standard price for the microbes and trace media. At that point, Sekisui may choose which type of microbes and trace media it would like to purchase from us, and we must carry stock of the same microbes sold to Sekisui for at least one year from the last delivery.

The entity operating the commercial facility is required to pay to us and Sekisui a license fee consisting of a percentage of gross sales of all products which utilize our licensed subject matter. Our portion of the licensing fee is a single-digit percentage of gross sales of all products which utilize our licensed subject matter. As of the date of this Annual Report, we have not received any payments under the Sekisui Term Sheet. The provisions of the Sekisui Term Sheet relating to the

license and supply of media and microbes continue in effect as long as the commercial facility is operating. Once in effect, we may terminate the license for uncured material breach, if the licensee becomes insolvent, or if there is a change of control or assignment without our consent.

Grant Agreement between LanzaTech UK Limited and UK Secretary of State for Transport

On December 12, 2022, LanzaTech UK Limited (“LanzaTech UK”), a wholly owned subsidiary of LanzaTech, was awarded a grant from the UK Authority in connection with Project DRAGON. The grant was awarded to fund LanzaTech UK’s front-end engineering design and associated project development activities for the UK Authority to achieve a final investment decision for a proposed facility in Port Talbot, South Wales, United Kingdom. The proposed facility would use LanzaTech’s process technology to convert a variety of waste sources into waste-based low-carbon ethanol. This ethanol would then be converted to SAF and diesel fuel using LanzaJet’s ATJ technology.

Pursuant to the grant agreement between LanzaTech UK and the UK Authority (the “DRAGON Grant Agreement”), the UK Authority agreed to provide to LanzaTech UK up to £24,961,000 upon the achievement of certain milestones related to Project DRAGON. In return, LanzaTech UK agreed to provide regular progress reports, audit reports, and documentation of its expenses to the UK Authority. In the event that LanzaTech UK defaults on its obligations under the DRAGON Grant Agreement, the UK Authority may suspend payments under the agreement, reduce the amount of the grant, require LanzaTech UK to repay amounts paid under the grant with interest, or terminate the agreement. All intellectual property rights owned by each of the parties prior to the date of the DRAGON Grant Agreement or developed by either party during the period of the grant will remain the property of such party. However, any intellectual property rights developed in the course of the activities funded by the grant and included in LanzaTech’s periodic progress reports to the UK Authority will belong to the UK Authority.

Either party may terminate the DRAGON Grant Agreement for convenience upon 28 days’ written notice. Upon termination of the DRAGON Grant Agreement, LanzaTech UK must return any unspent funds issued under the grant and promptly prepare a plan to terminate funded activities. If the UK Authority terminates the agreement for convenience, it will be obligated to pay to LanzaTech UK a reasonable amount in respect of any activities completed in furtherance of Project DRAGON at the time of termination, but will not be liable for any expenses related to any transfer or termination of any of LanzaTech UK’s employees engaged in activities related to Project DRAGON. The period for which the grant is awarded expires on March 31, 2025.

LanzaTech UK has agreed to indemnify and hold harmless the UK Authority and its representatives with respect to all actions, claims, charges, demands, losses and/or proceedings arising from or incurred by reason of the actions or omissions of LanzaTech UK in connection with Project DRAGON. To the extent permitted under applicable law, the UK Authority’s liability to LanzaTech UK under the DRAGON Grant Agreement will be limited to its obligation to make payment of grant funds when due and payable.

Agreements with Brookfield

Brookfield Framework Agreement

On October 2, 2022 we entered into a framework agreement with BGTF LT Aggregator LP, an affiliate of Brookfield Asset Management Inc. (“Brookfield” and such agreement, the “Brookfield Framework Agreement”). Under the Brookfield Framework Agreement, we agreed to exclusively offer Brookfield the opportunity to acquire or invest in certain projects to construct commercial production facilities employing CCT technology in the U.S., the European Union, the United Kingdom, Canada or Mexico for which we are solely or jointly responsible for obtaining or providing equity financing, subject to certain exceptions. We agreed to present Brookfield with projects that over the term of the agreement require equity funding of at least \$500,000,000 in the aggregate. With respect to projects acquired by Brookfield, we are entitled to a percentage of free cash flow generated by such projects determined in accordance with a hurdle-based return waterfall. Brookfield has no obligation under the Brookfield Framework Agreement to invest in any of the projects. Additionally, we agreed to recommend Brookfield to customers that, in our reasonable judgment, are likely to need third-party funding to develop, construct and own projects subject to the Brookfield Framework Agreement.

Brookfield’s exclusivity will terminate upon the earliest of (a) the aggregate equity funding by Brookfield in projects acquired by Brookfield of at least \$500,000,000, along with Brookfield’s written notice that it will no longer maintain access to at least \$500,000,000 to fund new projects, (b) Brookfield’s rejection of a specified number of projects that otherwise meet certain criteria over a specified time period, and (c) October 2, 2027, which is the date the Brookfield Framework Agreement is set to terminate.

Brookfield SAFE

On October 2, 2022, concurrently with entry into the Brookfield Framework Agreement, we entered into a Simple Agreement for Future Equity with Brookfield (the “Brookfield SAFE”). Under the Brookfield SAFE, we agreed to issue to Brookfield the right to certain shares of Legacy LanzaTech’s capital stock, in exchange for the payment of \$50,000,000 (the “Initial Purchase Amount”). Following the completion of the Business Combination, Brookfield may, at any time at its option, convert all or a portion of the Initial Purchase Amount less any amount that has already been converted or repaid (the “Purchase Amount”) into shares of the common stock. The number of shares into which the Purchase Amount and the Non-Repayable Amount (as defined below) are convertible is determined by dividing such amount by the price per share paid by the PIPE Investors (\$10.00).

On the fifth anniversary of the Brookfield SAFE, we will repay in cash any remaining unconverted portion of the Initial Purchase Amount (the “Remaining Amount”), plus interest in the high single digits, compounded annually. For each \$50,000,000 of aggregate equity funding required for qualifying projects acquired by Brookfield in accordance with the Brookfield Framework Agreement, the Remaining Amount would be reduced by \$5,000,000 (such reduction, the “Non-Repayable Amount”) and interest forgiven. Equity funding for any one or more projects in excess of \$50,000,000 in the aggregate will be counted towards the next \$50,000,000 of equity funding required for qualifying projects.

We may be required to repay the Brookfield SAFE prior to the fifth anniversary if upon a conversion event, if we take certain actions that would cause us to be unable to satisfy our obligations under the Brookfield SAFE, including failure to provide for certain rights to Brookfield in an Equity Financing or taking any action that would reasonably be expected to cause the fair market value of LanzaTech to fall below \$200,000,000. LanzaTech, Inc. provided a guarantee for LanzaTech to repay its obligations under the Brookfield SAFE, including any expenses incurred by Brookfield in enforcing or exercising its rights under such guarantee.

In the case of a liquidation or dissolution of LanzaTech, Brookfield would be entitled to receive a portion of the proceeds equal to the Purchase Amount plus interest in the high single digits, compounded annually, and such right would be on par with unsecured indebtedness of LanzaTech, and rank senior to any outstanding common stock, preferred stock and other SAFEs.

The Brookfield SAFE will automatically terminate following the earliest occurrence of (A) the Initial Purchase Amount having been fully repaid and/or converted and (B) the payment of amounts due to Brookfield in the event of a liquidation or dissolution of LanzaTech.

Brookfield Cooperation Letter Agreement

On October 2, 2022, in connection with our entry into the Brookfield Framework Agreement, we entered into a letter agreement with Suncor and Brookfield (the “Brookfield Cooperation Letter Agreement”). Under the Brookfield Cooperation Letter Agreement, we agreed to simultaneously notify Suncor upon the submission of any notice to Brookfield that a project is construction-ready under the Brookfield Framework Agreement for any equity investment opportunity in Canada or Colorado. For any of such investment opportunities Brookfield pursues, Brookfield has agreed under the Brookfield Cooperation Letter Agreement to grant Suncor the right to invest up to a certain percentage that lies between 15 – 25% of the required equity capital on economic terms at least as favorable as those granted to Brookfield and any other third-party investors.

Under the Brookfield Cooperation Letter Agreement, Suncor agreed to notify Brookfield of any projects using our technology that Suncor establishes which require equity capital from a third-party. Suncor has also agreed to consider any investment proposal presented to it by Brookfield pursuant to such notification prior to the execution of agreements with other third parties.

Letter Agreement with IndianOil

On December 4, 2017, we entered into a letter of agreement (the “IndianOil Letter Agreement”) with IndianOil. The IndianOil Letter Agreement sets forth a framework for the development of a plant utilizing our technology to produce ethanol from waste gas at IndianOil’s Panipat refinery in Haryana, India, as well as terms for future agreements for the development of additional plants by IndianOil or other third parties. In connection with the IndianOil Letter Agreement, we licensed to IndianOil certain technology used to produce ethanol from waste gas in exchange for royalties in the range of \$13 to \$14 per metric ton of ethanol, net of any applicable tax, by the first plant. For each additional plant developed by IndianOil, IndianOil has agreed to a royalty between \$28 and \$31 per metric ton of ethanol for a period of five years or alternatively, a lump sum license fee of \$8 million for an ethanol unit with a capacity of 40,000 metric tons per year, or on a proportionate basis

predicated on the actual size of the future unit. As of the date of this annual report, we have not received any royalty or lump sum license fees under the IndianOil Letter Agreement. IndianOil agreed to purchase design and engineering services, proprietary microbes and trace media mix from us to facilitate the construction and operation of the first IndianOil plant. Additionally, we agreed to provide IndianOil with terms for commercial deployment of our waste gas to ethanol process that are at least as favorable as those that we may grant to third parties (other than parties in which we have ownership or co-development projects we may undertake with third parties) in addition to an exclusivity period during which we have agreed to engage IndianOil as our engineering partner for commercial plants developed by third parties using the oil refinery technology we licensed to IndianOil. The IndianOil Letter Agreement terminates on December 4, 2027, unless earlier terminated by mutual agreement.

Suncor License Agreement

On October 6, 2020, we entered into a Master Licensing Agreement with Suncor, which was amended and supplemented on October 2, 2022 by the Brookfield Cooperation Letter Agreement (as amended, the “Suncor License Agreement”). Pursuant to the Suncor License Agreement we granted Suncor a worldwide, non-exclusive, license to certain of our intellectual property related to our gas fermentation technology, which is sub-licensable only to joint ventures affiliated with Suncor and transferable only with our consent.

This license is conditional on Suncor’s fulfillment of certain obligations including the provision of financing, engineering, and other project support services reasonably required for us to accomplish certain developmental and funding targets. Suncor paid us an initial license fee of \$5 million Canadian and has agreed to pay us a royalty of up to 10% of net revenue from excess ethanol produced at the first four commercial facilities developed under our joint development plans with Suncor above a certain daily quota and on all ethanol produced at additional facilities developed under our joint development plans with Suncor. Alternatively, Suncor may pay a one-time royalty fee for any licensed facility, which would be calculated based on the potential capacity of such facility. As of the date of this Annual Report, we have not received any royalty payments under the Suncor License Agreement.

Pursuant to the Suncor License Agreement, we granted most favored customer pricing to Suncor with regard to our engineering services, supply of equipment and microbes, and royalties from commercial facilities. Additionally, we granted Suncor a right of first refusal with regard to any investment in or off-take from any future commercial gas fermentation plants in Canada and Colorado, other than investment opportunities offered to Brookfield or its affiliates under the Brookfield Framework Agreement which would be subject to the provisions of the Brookfield Framework Agreement described above.

The Suncor License Agreement may be terminated by agreement of both parties if either party becomes insolvent, commits a material breach and fails to remedy such breach within a certain timeframe or if no commercial facilities have been completed under our joint development plans by 2031. We may terminate the agreement if Suncor fails to make required payments under the Suncor License Agreement. Suncor may terminate the agreement for convenience upon 90 days’ notice.

Government Regulation

Environmental Regulation

Our business and the businesses of the customers who license our technology are subject to various international, national, and regional laws and regulations relating to the production of renewable fuels, the protection of the environment and in support of the ethanol industry at large. These laws, their underlying regulatory requirements, and their enforcement, some of which are described below, impact our existing and potential business operations by imposing restrictions on our, our customers’ and our partners’:

- existing and proposed business operations or the need to install enhanced or additional pollution controls;
- need to obtain and comply with permits and authorizations;
- liability for exceeding applicable permit limits or legal requirements; and
- specifications related to the ethanol we market and produce.

GHG emissions are subject to environmental laws and regulations in the various jurisdictions in which we and our customers have operations. In the normal course of business, we and our customers and partners may be involved in legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act, the Resource Conservation and Recovery Act, and similar environmental laws across the globe relating to the designation of certain sites for investigation or remediation with respect to environmental risks.

Some of our and our customers' operations are within jurisdictions that have or are developing regulatory regimes governing emissions of GHGs, including CO₂. These include existing coverage under the European Union Emission Trading System, the California cap and trade scheme, India's Performance, Achieve and Trade scheme, South Africa's Trade Exposure and Greenhouse Gas Benchmark Regulations, the Tokyo Cap-and-Trade Program, China's Emission Trading Scheme and any potential expansions of these policies or related policies. In addition, the EPA requires mandatory reporting of GHG emissions and is regulating GHG emissions for new construction and major modifications to existing facilities.

Increased public concern surrounding the emission of GHGs may result in more international, national, or regional requirements to reduce or mitigate the effects of GHG emissions. While carbon reduction legislation will support the business case for implementing carbon capture technology, we cannot predict the manner or extent to which such legislation may affect our customers and partners and ultimately help or harm our business.

Our business could be affected in the future by additional international, national, and regional regulation, pricing of GHG emissions or other climate change legislation, regulation, or agreements. It is difficult at this time to estimate the likelihood of passage, or predict the potential impact, of any additional legislation, regulations or agreements. Potential consequences of new obligations could include increased technology, transportation, material, and administrative costs and may require us to make additional investments in our operations. As we continue distributing our technology to our target markets, international, national, or regional government entities may seek to impose regulations or competitors may seek to influence regulations through lobbying efforts.

Fuel Ethanol Regulation

There are various governmental programs and policies across the world that affect the supply and demand for ethanol and to which a significant percentage of our customers and partners are sensitive. For instance, in the United States, the federal government mandates the use of a certain amount of renewable fuels under the Renewable Fuel Standard II, or RFS II, and the Environmental Protection Agency has the authority to take measures with respect to RFS II that can have the effect of increasing or decreasing the overall volume of ethanol in the U.S. Currently, LanzaTech-derived ethanol from industrial emissions does not qualify as a Renewable Identification Number generating fuel under the US RFS II program. Furthermore, the recent United States-Mexico-Canada Agreement maintains the duty-free access of U.S. agricultural commodities, including ethanol, into Canada and Mexico and may have the effect of increasing the trading volume of ethanol throughout North America more broadly. Comparable international, U.S. federal and state regulatory and trading policies will affect the supply of ethanol for potential customers and partners within our target markets.

Chemical Regulation

There are important regulatory issues related to approval of chemicals from new pathways and approvals for import and use of genetically modified microorganisms ("GMM"). While specific requirements differ by jurisdiction, there are common elements across countries and regions such as chemical safety in production and end-use; required testing and data; process characterization; and following proper notification procedures. While chemically identical to existing and regulated chemicals, governments often require similar approval processes for new production routes such as those prescribed by the US Toxic Substances Control Act and the EU Registration, Evaluation, Authorisation and Restriction of Chemicals program. Further, the import and use of GMM such as biocatalysts in chemical production is governed by many of these same, as well as additional, laws and regulations. So far, we have received approximately 20 approvals or exemptions for use of our biocatalysts in the USA, China, India, Canada, Austria, Belgium, and Japan. As each jurisdiction has their own unique requirements for approval, our overall strategy for approval has included the use of external experts and consultants to accelerate our approval processes. Chemicals from new pathways is still an emerging area in legislation, where regulations are evolving to align with global best practices.

Our People & Culture

LanzaTech is a woman-led company. The core of who we are is based on a strong foundation of values. All team members are trained on how these fit into our day-to-day operations with our teammates and customers.

As of December 31, 2023, we had over 414 full-time equivalent employees working for LanzaTech in the United States, China, India, the United Kingdom, the European Union and New Zealand. None of our employees has engaged in any labor strikes. We have no collective bargaining agreements with our employees. We consider our relationship with our employees to be positive and have not experienced any major labor disputes.

Facilities

LanzaTech's global headquarters and R&D center are co-located at the Illinois Science + Technology Park research campus in Skokie, Illinois. The facility houses LanzaTech's state-of-the-art laboratories dedicated to synthetic biology, product synthesis, and analytics. In addition to its R&D center, the LanzaTech Freedom Pines Biorefinery located in Soperton, Georgia is used for scaling up and production. The site includes multiple >100 L gas fermentation systems emulating commercial designs and supporting laboratory facilities and is also the site of LanzaTech's scale up of the ATJ process.

Company Website and Available Information

LanzaTech's website address is www.lanzatech.com. We use our website as a channel of distribution for company, financial and other information. Our website also includes information about our corporate governance. We intend to post on our website any amendment or waiver of the Code of Business Ethics with respect to a member of our Board or any of the executive officers named in our proxy statement. Information contained on our website is not part of this report.

On the Investor Relations page on our website, we make available our Annual Report on Form 10-K, our Quarterly Reports on Form 10-Q, our Current Reports on Form 8-K and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (the "Exchange Act"). The SEC maintains www.sec.gov, containing annual, quarterly and current reports, proxy statements and other information we file electronically with the SEC.

Item 1A. Risk Factors

An investment in our equity securities involves a high degree of risk. Before you make a decision to buy our equity securities, in addition to the risks and uncertainties discussed in the section titled "Forward-Looking Statements," you should carefully consider the risks and uncertainties described below, together with all of the other information contained in this annual report, including our financial statements and related notes appearing at the end of this annual report and in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations." If any of the events or developments described below were to occur, our business, prospects, operating results and financial condition could suffer materially, the trading price of our equity 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 not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Summary of Risk Factors

The following is a summary of the principal risks to which our business, operations and financial performance are subject. Each of these risks is more fully described in the individual risk factors immediately following this summary.

- We have incurred losses and anticipate continuing to incur losses, and have not yet generated material revenues from marketing of CarbonSmart products and sale of equipment.
- The success of our partners' plant operations is significantly dependent upon the strong execution and operation of each project by the respective industry partner as we rely, and expect to continue to rely, heavily on industry partners to effect our growth strategy and to execute our business plan, and our failure to successfully maintain and manage these relationships and enter into new relationships could prevent us from achieving or sustaining profitability.
- Fluctuations in the prices of waste-based feedstocks used to manufacture the products produced using our process technologies, the price of fossil feedstocks relative to the price of our waste-based feedstocks, and the availability of the waste-based feedstocks may affect our or our industry partners' cost structure, gross margin and ability to compete.
- We compete in an industry characterized by rapidly advancing technologies, intense competition and a complex intellectual property landscape, and our failure to successfully compete with other companies in our industry may have a material adverse effect on our business, financial condition and results of operations and market share.
- We may require additional financing to fund our operations and complete the development and commercialization of the process technologies that produce each of our products or new aspects of our existing process technologies that produce each of our products, and we may not be able to do so on favorable terms in a timely fashion.
- Even if we successfully develop process technologies that produce products meeting our industry partners' specifications, the adoption of such process technologies by our industry partners may be delayed or reduced, or our costs may increase.

- Failure of LanzaJet to complete its initial facility or failure of third parties to adopt the LanzaJet process in their commercial facilities for the production of sustainable aviation fuel (“SAF”) may severely impact our business, financial condition, results of operations and prospects.
- Governmental programs designed to incentivize the production and consumption of low-carbon fuels and carbon capture and utilization, may be implemented in a way that does not include products produced using our novel technology platform and process technologies or could be repealed, curtailed or otherwise changed, which would have a material adverse effect on our business, results of operations and financial condition.
- Our ability to scale fast enough to reach profitability levels sufficient to generate a return on investment
- Risk that waste-based and other feedstock may be used in alternative processes, restricting the addressable market for LanzaTech
- If we experience a significant disruption in our information technology systems, including security breaches, or if we fail to implement new systems and software successfully, our business operations and financial condition could be adversely affected.
- Political and economic uncertainty, including changes in policies of the Chinese government or in relations between China and the United States, may impact our revenue and materially and adversely affect our business, financial condition, and results of operations.
- Our ability or the ability of our partners to operate in China may be impaired by changes in Chinese laws and regulations, including those relating to taxation, environmental regulation, restrictions on foreign investment, and other matters, which can change quickly with little advance notice.
- Our operations and financial results may be impacted if the Chinese government determines that the contractual arrangements constituting part of the Shougang Joint Venture VIE structure do not comply with Chinese regulations, or if these regulations change or are interpreted differently in the future.
- We and our partners may be subject to regulatory actions by the Chinese government targeting concerns related to data security and monopolistic behavior.
- Changes in China’s economic, political or social conditions or legal system or government policies could have a material adverse effect on our business and operations.
- We may be subject to risks that the Chinese government may intervene or influence our operations at any time.
- We and our industry partners are subject to extensive international, national and regional laws and regulations, and any changes in laws or regulations, or failure to comply with these laws and regulations, could have a material adverse effect on our business.
- Market prices for more sustainable, waste-based products that our process technologies enable are subject to volatility and there is a limited referenceable market for such products.
- Our patent rights and trade secrets protections may not provide commercially meaningful protection against competition, and we may not be able to operate our business without infringing the proprietary rights of third parties.
- There can be no assurance that our warrants will be in the money at the time they become exercisable, and they may expire worthless.

Risks Related to Our Business and Industry

We have incurred losses and anticipate continuing to incur losses.

We have not achieved operating profitability in any quarter since our formation. Our net losses after tax were approximately \$134.1 million year ended December 31, 2023 and \$76.4 million for the year ended December 31, 2022. As of December 31, 2023, we had an accumulated deficit of \$831.9 million. We anticipate that we will continue to incur losses until we can sufficiently scale our operations. We cannot guarantee when we will operate profitably, if ever. The profitability of products produced using our process technologies depends largely on manufacturing costs and the market prices of the products produced using our process technologies. In the case of the partners with which we have entered licensing agreements, the prices they are able to charge impact the royalty fees we derive from their revenues. We must sustain the relationships we have developed with our current partners and successfully establish relationships with new partners to which we can license our proprietary technologies or with whom we can co-develop plants, and we must continue to find ways to further enhance

our technology platform and product portfolio. If we are unable to successfully take these steps, we may never operate profitably, and, even if we do achieve profitability, we may be unable to sustain or increase our profitability in the future.

The success of our partners' plant operations is significantly dependent upon the strong execution and operation of each project by the respective industry partner as we rely, and expect to continue to rely, heavily on industry partners to effect our growth strategy and to execute our business plan. Our failure to successfully maintain and manage these relationships and enter into new relationships could delay our anticipated timelines, prevent the successful development and commercialization of products produced using our process technologies, negatively impact our financial results and prevent us from achieving or sustaining profitability.

Our ability to successfully maintain and manage partnering arrangements and enter into new partnering arrangements are critical factors to the success of our business and growth. We rely, and expect to continue to rely, heavily on such arrangements. We have limited or no control over the amount or timing of resources that any third party commits to negotiating a partnering arrangement with us or, if negotiated and entered into, the timing or amount of resources that a third party will commit to our projects. Any third party with which we are in negotiations may experience a change of policy or priorities and may discontinue negotiations with us. Any of our industry partners may fail to perform their obligations as expected. These industry partners may breach or terminate their agreements with us or otherwise fail to conduct their partnering activities successfully and in a timely manner. Further, our industry partners may not develop commercially viable products in connection with our partnering arrangements or devote sufficient resources to the development, manufacture, marketing and sale of products produced using our process technologies. Moreover, disagreements with an industry partner could develop, and any such conflict could reduce our ability to enter into future partnering agreements and negatively impact our relationships with one or more existing industry partners. Any of these events could delay our anticipated timelines, prevent the successful development and commercialization of products produced using our process technologies, negatively impact our financial results, and prevent us from ever achieving or sustaining profitability. These negative consequences could be augmented in the event that we are forced to seek replacement partners.

Our current and future partnering opportunities could be harmed if:

- we do not achieve our objectives under our arrangements in a timely manner, or at all;
- we disagree with our industry partners as to rights to intellectual property we jointly develop or that they must license from us, or as to their research programs or commercialization activities;
- we are unable to successfully manage multiple partnering arrangements occurring at the same time;
- applicable laws, regulations or state actors, domestic or foreign, impede our ability to enter into strategic arrangements;
- we develop processes or enter into additional partnering arrangements that conflict with the business objectives of our other arrangements;
- our industry partners become competitors of ours or enter into agreements with our competitors; or
- consolidation in our target markets limits the number of potential industry partners.

Additionally, because we have entered into exclusive arrangements with industry partners, other potential partners in our industry may choose to compete against us, rather than partner with us. This may limit our partnering opportunities and harm our business and prospects. Our business also could be negatively impacted if any of our industry partners undergoes a change of control or assigns the rights or obligations under any of our agreements. If any of our industry partners were to assign these agreements to our competitors or to a third party who is not willing to work with us on the same terms or commit the same resources as the current industry partner, our business and prospects could be adversely affected.

Even if we are successful in entering into strategic partnering arrangements, there are a number of different arrangements that we can pursue, and there are no assurances that we will select and negotiate the best arrangements for us and our stockholders.

We seek to commercialize our process technologies by pursuing licensing arrangements in some markets and seek arrangements to co-develop projects in others. Our business strategy is based on a wide variety of factors, including the size and competitive environment in each market, and our perceived ability to best monetize our proprietary technology. The types of arrangements we enter into with our industry partners will be significant in determining the amount of risk and control that we maintain with respect to the development and commercialization of products produced using our process technologies. The contractual arrangements with our industry partners will also determine the amount of capital we need to

contribute to a particular project, as well as the revenue we may receive and the margins associated with any sale of products produced using our process technologies. We will need to analyze these issues properly and negotiate corresponding arrangements with our industry partners to efficiently balance the amount of risk we take, the level of control we maintain and the amount of revenues and margins we obtain with respect to the products produced using our process technologies. There are no assurances that we will select and negotiate the best arrangements for us and our stockholders. Failure to choose optimal arrangements could result in delays or failures in the commercial development of certain products produced using our process technologies, sub-optimal economic returns and capital commitments that negatively impact our business, and our ability to successfully pursue multiple opportunities in parallel.

We have entered into and anticipate entering into non-binding letters of intent, memoranda of understanding, term sheets and other arrangements with potential industry partners and cannot assure you that such arrangements will lead to definitive agreements. If we are unable to finalize these arrangements in a timely manner and on terms favorable to us, our business will be adversely affected.

We have engaged in negotiations with a number of companies and have agreed to preliminary terms regarding the development and commercialization of certain products produced using our process technologies. We may be unable to negotiate final terms in a timely manner, or at all, and there is no guarantee that the terms of any final, definitive, binding agreement will be the same or similar to those currently contemplated in a preliminary agreement. Final terms may be less favorable to us than those set forth in the preliminary agreements. Delays in negotiating final, definitive, binding agreements could slow the development and commercialization of products produced using our process technologies. Failure to agree to final terms for the development and commercialization of such products could prevent us from growing our business, result in wasted resources and cause us to consume capital significantly faster than we currently anticipate.

We continue to face significant risks associated with our international expansion strategy.

We are continuing to seek new opportunities to produce and commercialize products using our process technologies outside the United States through entering into licensing and co-development arrangements with new and existing industry partners. Our international business operations are subject to a variety of risks, including:

- challenges associated with operating in diverse cultural and legal environments, including legal restrictions that impact our ability to enter into strategic partnering arrangements;
- the need to comply with a variety of U.S. laws applicable to the conduct of overseas operations, including export control laws and the Foreign Corrupt Practices Act and local law requirements;
- our ability, or reduced ability, to protect our intellectual property in certain countries;
- potential for longer sales cycles in certain countries;
- changes in or interpretations of foreign rules and regulations that may adversely affect our or our industry partners' ability to produce or sell products manufactured using our process technologies or repatriate profits to the United States;
- economic, political or social instability in foreign countries;
- changes in demand for products produced using our process technologies in international markets;
- the imposition of tariffs and other foreign taxes;
- the imposition of limitations on, or increase of, withholding and other taxes on remittances and other payments by foreign subsidiaries or joint ventures;
- limitations on the production or movement of genetically engineered products or processes and the production or sale of products or processes manufactured using genetically engineered products, into, out of and within foreign countries; and
- the availability of government subsidies or other incentives that benefit competitors in their local markets that are not available to us.

Our inability to overcome these obstacles could harm our business, financial condition and operating results. Even if we are successful in managing these obstacles, our industry partners internationally are subject to these same risks and may not be able to manage these obstacles effectively.

Construction of our or our partners' plants may not be completed in the expected timeframe or in a cost-effective manner. Any delays in the construction of plants could severely impact our business, financial condition, results of operations and prospects.

Our projected financial performance and results of operations depend on our ability and our partners' abilities to construct several commercial scale plants. With respect to these future plants, we and our partners also do not have agreements with engineering, procurement or construction firms. Consequently, we cannot predict on what terms such firms may agree to design and construct future plants.

If we and our partners are unable to construct these plants within the planned timeframes, in a cost-effective manner or at all due to a variety of factors, including, but not limited to, a failure to acquire or lease land on which to build plants, a stoppage of construction as a result of any global health crises or pandemic, the imposition or heightening of sanctions or other economic or military measures in relation to the current conflicts in Europe and the Middle-East, unexpected construction problems, permitting and other regulatory issues, severe weather, labor disputes, and issues with subcontractors or vendors, including payment disputes, our business, financial condition, results of operations and prospects could be severely impacted.

The construction and commission of any new project is dependent on a number of contingencies some of which are beyond our and our partners' control. There is a risk that significant unanticipated costs or delays could arise due to, among other things, errors or omissions, unanticipated or concealed project site conditions, including subsurface conditions and changes to such conditions, unforeseen technical issues or increases in plant and equipment costs, insufficiency of water supply and other utility infrastructure, or inadequate contractual arrangements. Should these or other significant unanticipated costs arise, this could have a material adverse impact on our business, financial condition, results of operations and prospects. No assurance can be given that construction will be completed on time or at all, or as to whether we and our partners will have sufficient funds available to complete construction.

Failure to continuously reduce operating and capital costs for our and our partners' facilities that deploy our process technologies may impact adoption of our process technologies and could severely impact our business, financial condition, results of operations and prospects.

As of the date of this Annual Report, 13 facilities are in advanced engineering phases utilizing our technology and dozens more in earlier stages of development. We anticipate the deployment of numerous commercial facilities to accelerate the commercialization of our process. If we are unable to adequately reduce and control the operating and capital costs of our and our partners' facilities that deploy our process technologies, we will be unable to realize manufacturing volume and cost targets. We and our partners may have to significantly reduce our spending, delay or cancel our planned activities or substantially change our current business model. This could slow the market adoption of our process technologies and products, damage our reputation with current or prospective industry partners and investors, and harm our business, financial condition, results of operations and prospects.

Maintenance, expansion and refurbishment of our and our partners' facilities, the construction of new facilities and the development and implementation of our new process technologies or new aspects of our existing process technologies involve significant risks.

Our facilities and our partners' facilities may require regular or periodic maintenance, upgrading, expansion, refurbishment or improvement. Any unexpected operational or mechanical failure, including failure associated with breakdowns and forced outages, could reduce the facilities' production capacity below expected levels, which would reduce our and our partners' production capabilities and ultimately our revenues. Unanticipated capital expenditures associated with maintaining, upgrading, expanding, repairing, refurbishing, or improving facilities may also reduce our profitability. Our facilities and our partners' facilities may also be subject to unanticipated damage as a result of natural disasters, terrorist attacks or other events.

If we or our partners make any major modifications to facilities, such modifications likely would result in substantial additional capital expenditures and could prolong the time necessary to bring the facility online. We or our partners may also choose to refurbish or upgrade facilities based on our assessment that such activity will provide adequate financial returns. However, such activities require time for development and capital expenditures before commencement of commercial operations, and key assumptions underpinning a decision to make such an investment may prove incorrect, including assumptions regarding construction costs and timing, which could harm our business, financial condition, results of operations and cash flows.

The construction of new manufacturing facilities entails a number of risks and assumptions, including the ability to begin production within the cost and timeframe estimated and to attract a sufficient number of skilled workers to meet the needs of the new facility. Additionally, our and our partners' assessment of the projected benefits associated with the construction of new manufacturing facilities is subject to a number of estimates and assumptions, which in turn are subject to significant economic, competitive and other uncertainties that are beyond our control. If we or our partners experience delays or increased costs, our estimates and assumptions are incorrect, or other unforeseen events occur, our business, ability to supply our industry partners, financial condition, results of operations and cash flows could be adversely impacted.

Finally, we may not be successful or efficient in developing or implementing new processes technologies or new aspects of our existing process technologies. Innovation in production processes involves significant expense and carries inherent risks, including difficulties in designing and developing new process technologies, development and production timing delays, lower than anticipated manufacturing yields, and product defects. Disruptions in the production process can also result from errors, defects in materials, delays in obtaining or revising operating permits and licenses, returns of product from our industry partners, interruption in our supply of materials or resources, and disruptions at our or our partners' facilities due to accidents, maintenance issues, or unsafe working conditions, all of which could affect the timing of production ramps and yields. Production issues can lead to increased costs and may affect our and our partners' ability to meet product demand, which could adversely impact our business and results from operations.

Our commercial success may be influenced by the price of fossil feedstocks relative to the price of our waste-based feedstocks.

Our commercial success may be influenced by the cost of our and our partners' products produced using our process technologies relative to fossil feedstock-based products. The cost of fossil feedstock-based products is in part based on the price of fossil feedstocks, which are subject to historically fluctuating prices. If the price of waste-based feedstocks increases and/or the price of fossil feedstocks decreases, products produced using our process technologies may be less competitive relative to fossil feedstock-based products. A material decrease in the cost of conventional fossil feedstock-based products may require a reduction in the prices of products produced using our process technologies for them to remain attractive in the marketplace and may negatively impact our revenues.

Fluctuations in the prices of waste-based feedstocks used to manufacture the products produced using our process technologies may affect our or our industry partners' cost structure, gross margin and ability to compete.

The cost to produce the products we commercialize with our industry partners is highly dependent on the cost and usage of various waste-based feedstocks. The prices of many of these feedstocks are cyclical and volatile. An increase in the price of the waste-based feedstocks used to manufacture the products produced using our process technologies would likely change our or our industry partners' cost structure and impact our gross margin. At certain levels, waste-based feedstock prices may make the products produced using our process technologies uneconomical to manufacture.

Although there may be indices that show the pricing of the feedstock used for production that closely track to products produced using our process technologies, there are no assurances that these indices will be valid or, if valid, that current prices will not later change. In addition, we may underestimate the volume of feedstock required to operate at commercial scale. For example, although the feedstock usage quantities are based on predictable chemical reactions, the actual consumption required to produce SAF on a commercial scale may be greater, affecting production cost and impacting production volumes. We cannot control the cost of these feedstocks, and we could underestimate feedstock pricing and volume requirements. These uncertainties could affect our costs, or the costs of our industry partners, and our gross margin. Although we believe that our process technologies can operate on multiple feedstocks in the event that prices of specific feedstocks fluctuate, we have not tested this on a commercial scale and cannot guarantee that feedstocks are interchangeable without requiring significant alterations to our process technologies.

Declines in the prices of feedstocks our competitors use to produce their products could allow them to reduce the prices of their products, which could cause us or our industry partners to reduce the prices of the products produced using our process technologies. This could make it uneconomical for our partners to produce products using our process technologies.

The cost to produce the products our competitors and our industry partners' competitors are commercializing and attempting to commercialize is highly dependent on the cost and usage of various feedstocks. The cost to produce ethanol by our competitors is highly dependent on the prices of corn, sorghum, barley, sugar cane and sugar beets. The prices of many of these feedstocks are cyclical and volatile. Declines in the prices of the feedstocks our competitors use to produce their products could allow our competitors to reduce the prices of their products. This in turn could cause our industry partners to have to reduce the prices of any competing products that are commercialized using our process technologies, or make it

uneconomical for our partners to produce products using our process technologies, which would reduce the revenues we generate in connection with our partners' sale of such products. Even the perception of future declines in the feedstocks our competitors utilize may adversely affect the prices our industry partners can obtain from our industry partners or prevent potential industry partners from entering into agreements to buy products produced using our process technologies.

If the availability of the waste-based feedstocks used in our process technologies declines or competition for them increases, we or our business partners may experience delayed or reduced production or be required to raise the prices of the products produced using our process technologies, either of which could reduce the demand for the products produced using our process technologies and our revenue.

The production of products using our process technologies will require large volumes of waste-based feedstocks. We cannot predict the future availability of any waste-based feedstock necessary to produce products using our process technologies. The supply of waste-based feedstocks might be impacted by a wide range of factors, including increased competition, weather conditions, natural disasters, droughts, floods, changes in the waste-producing industries, the imposition or heightening of sanctions or other economic or military measures in relation to the current conflicts in Europe and Middle-East, or government policies and subsidies. Declines in the availability of the waste-based feedstocks used to produce products using our process technologies could cause delays or reductions in production, increases in the prices of products produced using our process technologies, and reductions in demand for products produced using our process technologies, resulting in reduced revenue for us.

We compete in an industry characterized by rapidly advancing technologies, intense competition and a complex intellectual property landscape, and our failure to successfully compete with other companies in our industry may have a material adverse effect on our business, financial condition and results of operations and market share.

While we do not believe we have any direct competitors, there can be no assurance that we will not have direct competition in the future, that such competitors will not substantially increase the resources devoted to the development and marketing of their products and services that compete with us, or that new or existing competitors will not enter the market in which we are active.

We face substantial indirect competition from many different sources, including companies that enjoy competitive advantages over us, such as greater financial, research and development, manufacturing, personnel and marketing resources, greater brand recognition, stronger historical relationships with their customers and more experience and expertise in intellectual property rights and operating within certain international locations.

These competitors may introduce competing products without our prior knowledge and without our ability to take preemptive measures in anticipation of their commercial launch. Competition may increase further as a result of greater availability of capital for investment and increased interest in our industry as more companies seek to facilitate the development of a circular carbon economy. Our competitors may succeed in developing, acquiring or licensing on an exclusive or non-exclusive basis technologies that are more effective or less costly than those we have developed. Our failure to successfully compete may have a material adverse effect on our business, financial condition and results of operations and diminish our market share.

Technological innovation by others could render our technology and the products produced using our process technologies obsolete or uneconomical.

The fuel and chemical industries are characterized by rapid and significant technological change. Our success will depend on our ability to maintain a competitive position with respect to technological advances. Our technology and the products derived from our technology may be rendered obsolete or uneconomical by technological advances by others, more efficient and cost-effective products, or entirely different approaches developed by one or more of our competitors or other third parties. Though we plan to continue to expend significant resources to enhance our technology platform and processes, there are no assurances we will be able to keep pace with technological change.

Our financial results could vary significantly from quarter to quarter and are difficult to predict.

Our financial results could vary significantly from quarter to quarter because of a variety of factors, many of which are outside of our control and are difficult to predict. As a result, comparing our results of operations on a period-to-period basis

may not be meaningful. In addition to the risk factors stated herein, other factors that could cause our quarterly results of operations to fluctuate include:

- achievement of, or failure to achieve, technology or product development milestones needed to allow us to enter identified markets on a timely and cost-effective basis;
- delays or greater than anticipated expenses associated with the scale-up and the commercialization of process technologies to produce new products;
- changes in the amount that we invest to develop, acquire or license new technologies and processes;
- our ability to successfully enter into partnering arrangements, and the terms of those relationships (including levels of related capital contributions);
- fluctuations in the prices or availability of the feedstocks required to produce products using our process technologies or those of our competitors;
- changes in the size and complexity of our organization, including our expanded operations as a public company;
- changes in general economic, industry and market conditions, both domestically and in our foreign markets;
- business interruptions, including disruptions in the production process at any facility where products produced using our process technologies are manufactured;
- departure of executives or other key management employees;
- changes in the needs for the products produced using our process technologies;
- the development of new competitive technologies or products by others and competitive pricing pressures;
- the timing, size and mix of sales to our industry partners for products produced using our process technologies;
- seasonal production and the sale of products produced using our process technologies; and
- changes in governmental, accounting and tax rules and regulations, environmental, health and safety requirements, and other rules and regulations.

Due to these and other factors, our financial results for any quarterly or annual period may not meet our expectations or the expectations of our investors and may not be meaningful indications of our future performance.

Our financial projections may differ materially from actual results.

Our financial projections are based on our estimates and assumptions concerning various factors which are subject to significant risks and uncertainties, many of which are beyond our control, and therefore actual results in the past and may in the future differ materially. These estimates and assumptions include, among others: estimates of the total addressable market for products produced using our process technologies; assumptions regarding industry partner demand and performance under existing agreements and industry partner agreements currently under negotiation; estimates of the rate at which project starts can be achieved; assumptions regarding our ability to identify and convert new customers; estimates of our ability to retain and add capacity with existing customers; assumptions regarding our ability to negotiate and structure product offtake; estimates of the rate and timelines at which certain project development milestones can be achieved; assumptions regarding our ability to scale production to meet current and future demand; and assumptions regarding research, product development, product timelines, operational execution and demand. These estimates and assumptions are subject to various factors beyond our control, including, for example, changes in industry partner demand, changes in the supply of feedstock, increased construction costs for our plants, changes in the regulatory environment, the impact of global health crises, the imposition or heightening of sanctions or other economic or military measures in relation to the current conflicts in Europe and Middle East, and changes in our executive team. Notably, our financial projections reflect assumptions regarding contracts that are currently under negotiation with, as well as indications of interest from, potential industry partners who may withdraw at any time. Accordingly, our future financial condition and results of operations may differ materially from our projections and expectations. Our failure to achieve our projected results could harm the trading price of our securities and our financial position and make it challenging for us to raise additional financing to fund our operations.

We may require additional financing to fund our operations and complete the development and commercialization of the process technologies that produce each of our products or new aspects of our existing process technologies that produce each of our products, and we may not be able to do so on favorable terms.

Our operations have consumed substantial amounts of cash since inception, and over time we expect to substantially increase our spending, in particular, as we:

- enter into and engage in strategic partnering arrangements to produce products cost-effectively at acceptable quality levels and price points, including making capital contributions for the construction of certain plants;
- invest in developments with respect to our existing process technologies in order to increase their effectiveness or reduce related capital expenditures;
- expand our research and development efforts;
- grow our business organization;
- pursue select co-development opportunities;
- seek to identify additional market opportunities for the products produced using our process technologies; and
- pursue partnering arrangements.

We believe our existing cash and cash equivalents will be sufficient to fund our operations for at least 12 months from the date of this Annual Report. However, changing circumstances may cause us to consume capital significantly faster than we currently anticipate, and we may spend more money than currently expected because of circumstances beyond our control. Moreover, we and our industry partners may experience delays in the production of commercial quantities of products, in a manner that is cost-effective and at suitable quality levels, which would postpone our ability to generate revenue associated with the sale of such products. Securing additional financing could require a substantial amount of time and attention from our management and may divert a disproportionate amount of its attention away from our business activities, which may adversely affect our ability to conduct our day-to-day operations. In addition, we cannot guarantee that future financing will be available in sufficient amounts or on terms acceptable to us, if at all. If we are unable to raise additional capital when required or on acceptable terms, we may be required to:

- delay or suspend some or all of our commercialization efforts;
- decrease or abandon some or all of our research and development efforts;
- decrease the financial resources dedicated to our partnering efforts, which may substantially postpone the development, manufacture, marketing or sale of existing and future products produced using our process technologies; and
- suspend the growth of our organization.

To raise additional funds to support our business operations, we may sell additional equity, or convertible debt securities, which would result in the issuance of additional shares of our capital stock and dilution to our stockholders. The incurrence of indebtedness would result in increased fixed payment obligations and could also result in certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we are unable to raise additional capital in sufficient amounts or on terms acceptable to us, we will be prevented from pursuing discovery, development and commercialization efforts and our ability to generate revenues and achieve or sustain profitability will be substantially harmed.

If we are unable to manage our growth and expand our operations successfully, our reputation and brand may be damaged and our business and results of operations may be harmed.

Over the past several years, we have experienced significant expansion of our business. We expect this growth to continue and accelerate in the future in connection with our commercialization efforts, and expanded research and development activities. Our ability to effectively manage our anticipated growth and expansion of our operations will require us to do, among other things, the following:

- enhance our operational, financial and management controls and infrastructure, human resource policies, and reporting systems and procedures;

- effectively scale our operations;
- successfully identify, recruit, hire, train, maintain, motivate and integrate additional employees;
- expand our facilities and equipment; and
- effectively manage and maintain our corporate culture.

These enhancements and improvements will require significant capital expenditures and allocation of valuable management and employee resources, and our growth will continue to place a strain on our operational, financial and management infrastructure. Our future financial performance and our ability to execute on our business plan will depend, in part, on our ability to effectively manage any future growth and expansion. There are no guarantees we will be able to do so in an efficient or timely manner, or at all. Our failure to effectively manage growth and expansion could have a material adverse effect on our business, results of operations, financial condition, prospects and reputation.

If we lose key personnel or are unable to attract, integrate and retain additional key personnel, it could harm our research and development efforts, delay the commercialization of the new process technologies or the new aspects of our existing process technologies, delay the launch of process technologies in our development pipeline and impair our ability to meet our business objectives.

Our business involves complex operations spanning a variety of disciplines and demanding a management team and employee workforce that is knowledgeable in the many areas necessary for our operations. The loss of any key member of our management team or key research and development or operational employees, or the failure to attract and retain such employees, could prevent us from developing and commercializing new process technologies or the new aspects of our existing process technologies, delay the launch of process technologies in our development pipeline and impair our ability to meet our business objectives.

We may not be able to attract or retain qualified employees due to the intense competition for qualified personnel among technology-based businesses, or due to the scarcity of personnel with the qualifications or experience necessary for our business. Hiring, training and successfully integrating qualified personnel into our operations can be a lengthy and expensive process, and efforts to integrate such personnel may not be successful. The market for qualified personnel is very competitive because of the limited number of people available with the necessary technical skills and understanding of our technology, and given the number of companies in this industry seeking this type of personnel. If we are not able to attract, integrate and retain the necessary personnel to accomplish our business objectives, we may experience staffing constraints that will adversely affect our ability to support our internal research and development programs. In particular, our production process development, process engineering, research and development, and plant operations programs are dependent on our ability to attract, integrate and retain highly skilled scientific, technical and operational personnel. Competition for such personnel from numerous companies and academic and other research institutions may limit our ability to do so on acceptable terms, or at all. As we continue to expand our international operations, these personnel-related risks will increase and we will face additional geography-specific challenges, such as challenges hiring, training, and relocating employees to specific regions or countries and differing tax and regulatory regimes.

Even if we successfully develop process technologies that produce products meeting our industry partners' specifications, the adoption of such process technologies by our industry partners may be delayed or reduced, or our costs may increase, due to customer qualification, negative life cycle assessment or capital investment procedures.

Even if the products produced using our process technologies are produced at contractual or targeted specifications, as the case may be, we or our industry partners may face delays or reduced demand for such products related to current or future customer qualification trials that could take several months, complicated life cycle assessments, or capital investment procedures. For the products produced using our process technologies to be accepted, our industry partners may need to test and certify them for use in their processes and, in some cases, determine whether products that contain the products produced using our process technologies satisfy additional third-party specifications. We may need to demonstrate to our industry partners that the products produced using our process technologies do not contain impurities that cause such products to behave differently than their traditional equivalents in a way that impacts their end-product quality. Our industry partners, in turn, may need to validate the use of the products produced using our process technologies for third parties. Our products may require lengthy and complex life cycle assessments to evaluate the potential environmental impacts of the products through their entire life cycles, covering all relevant inputs from, and emissions into, the environment. Our industry partners' customers may need to engage in capital investment procedures to assess their abilities to invest in our products, which may result in those customers determining not to allocate their resources to purchasing our products. Meeting these suitability standards could be a time-consuming and expensive process, and our industry partners may invest substantial time and resources into such qualification efforts without ultimately securing approval by their customers. This could materially and adversely impact our revenues until customer qualification, positive life cycle assessment or capital investment procedures are achieved and maintained.

Failure of LanzaJet to complete its initial facility or failure of third parties to adopt the LanzaJet process in their commercial facilities for the production of SAF may severely impact our business, financial condition, results of operations and prospects.

Pursuant to the LanzaJet Investment Agreement, described in more detail in the section entitled “*Business — Key Collaboration Agreements — LanzaJet Agreements — LanzaJet Amended and Restated Investment Agreement*,” Mitsui, Suncor Energy Inc. (“Suncor”), British Airways PLC, a subsidiary of International Consolidated Airlines Group (“British Airways”) and Shell Ventures LLC (“Shell”) have committed to invest in LanzaJet a total of up to \$120 million in second tranche investments upon the achievement of certain development milestones relating to an initial demonstration facility located at the LanzaTech Freedom Pines Biorefinery in Soperton, Georgia (the “Soperton facility”). Pursuant to the LanzaJet Investment Agreement, \$45 million has already been invested in setting up LanzaJet and in constructing the Soperton facility. Our partners have likewise agreed to determine the feasibility of developing additional potential facilities for the commercial scale production of alcohol-to-jet (“ATJ”) fuel.

Although LanzaJet is currently working with the partners mentioned above to confirm project locations and solidify the appropriate project structures, and we are developing projects ourselves to construct and operate facilities that would use the LanzaJet process, there is no guarantee that these facilities will be completed or that third parties will adopt the LanzaJet process in their commercial facilities for the production of SAF. The failure of LanzaJet to complete its initial facility or of third parties to adopt the LanzaJet process in their commercial facilities could severely impact our business, financial condition, results of operations and prospects.

Furthermore, we currently have approximately a 23% voting interest (including in-substance common stock) in LanzaJet and are not able to make decisions on behalf of LanzaJet without support from other shareholders. We will remain a minority shareholder in LanzaJet unless we are issued shares pursuant to the LanzaJet Amended and Restated Investment Agreement upon the closing of at least two of the second tranche investments by any of Mitsui, Suncor, British Airways and Shell. The conditions for these second tranche investments include performance requirements at the Soperton facility, regulatory approvals, the negotiation of additional agreements and other conditions which are outside our control. These conditions have not been, and may never be, met. As such, we cannot guarantee when or whether we will become majority shareholders in, or exercise control over, LanzaJet at any time in the future.

LanzaJet has an exclusive license to some of our intellectual property related to SAF.

In connection with the LanzaJet Investment Agreement, we entered into an intellectual property and technology license agreement (the “LanzaJet License Agreement”) with LanzaJet. Pursuant to the LanzaJet License Agreement, we granted to LanzaJet a perpetual, worldwide, non-transferrable, irrevocable, royalty-free, sublicensable, exclusive license to certain intellectual property related to the conversion of ethanol to fuel. This license is exclusive including as to us. With the exception of certain pre-existing SAF obligations and development projects for which we have already been granted sublicenses, we are unable to undertake new SAF production opportunities using the licensed intellectual property, or otherwise use such intellectual property for the conversion of ethanol to fuel, without the prior consent of LanzaJet while the LanzaJet License Agreement is in effect. We cannot guarantee that LanzaJet would grant such consent or otherwise agree to grant to us a license of intellectual property and our receipt thereof would depend on negotiations with our fellow shareholders of LanzaJet.

In connection with the LanzaJet Shareholder Loan described in more detail in the section entitled “*Business — Key Collaboration Agreements — LanzaJet Agreements — LanzaJet Amended and Restated Stockholders’ Agreement*,” LanzaJet collaterally assigned its license from LanzaTech to secure the LanzaJet Freedom Pines Fuels LLC (“FPF”) shareholder debt. In the event of a default by FPF, LanzaJet shareholders could prevent LanzaJet from funding FPF to cure its default and ultimately foreclose on LanzaJet’s license.

Our and our industry partners’ failure to accurately forecast demand for any product produced using our process technologies could result in an unexpected shortfall or surplus that could negatively affect our results of operations.

Because of the length of time it takes to develop and commercialize the products produced using our process technologies, we and our industry partners must make development and production decisions well in advance of commercial production and sale of such products. Our and our industry partners’ ability to accurately forecast demand for any of the products produced using our process technologies that are commercialized can be adversely affected by a number of factors, many of which are outside of our control, including actions by our competitors, changes in market conditions, environmental factors and adverse weather conditions. A shortfall or surplus in the supply of products produced using our process technologies may reduce our revenues, damage our reputation and adversely affect industry partner relationships, which could harm our business, results of operations and financial condition.

Our success is highly dependent on our ability to maintain and efficiently utilize our technology platform, and to effectively identify potential products from which to develop and commercialize new process technologies, and problems related to our technology platform could harm our business and result in wasted research and development efforts.

We are highly dependent on our technology platform for the development and commercialization of products and new process technologies. If we experience challenges in our technology platform, such as problems with engineering new microbes, or if we encounter problems interpreting and analyzing data using our process technologies, our business and ability to compete may be harmed and our financial condition negatively affected.

We may not be successful in identifying new market opportunities and needs and developing our technology platform, or process technologies to produce products to meet those needs, which would limit our prospects and lead to greater dependency on the success of a smaller number of target products.

The success of our business model depends in part on our ability to identify new market opportunities and needs for our technology platform, or process technologies to produce products to meet those needs. The manufacturing technologies we research and develop are new and continuously changing and advancing. The products that are derived from these technologies may not be applicable or compatible with demands in existing or future markets. Furthermore, we may not be able to identify new opportunities as they arise for products since future applications of any given product may not be readily determinable, and we cannot reasonably estimate the size of any markets that may develop. If we are not able to successfully identify new market opportunities and needs and develop new technologies, processes or products to meet those needs beyond those we currently develop, we may be unable to expand our business and will therefore be highly dependent on the revenues related to the products that can currently be produced using our process technologies.

Our failure or the failure of our industry partners to realize expected economies of scale could limit our or our partners' ability to sell products produced using our process technologies at competitive prices, negatively impact our ability to enter into other strategic arrangements and the potential for other industry partners to adopt our process technologies, and materially and adversely affect our business and prospects.

We and our industry partners may be unable to realize expected economies of scale in connection with scale up and commercialization efforts. The failure to achieve these efficiencies or realize these expected benefits could negatively impact our or our industry partners' ability to sell products produced using our process technologies at competitive prices, negatively impact our ability to enter into other strategic arrangements and the potential for other industry partners to adopt our process technologies, and materially and adversely affect our business and prospects.

Our microbial protein products activity, which allows for the extraction of spent microbes that contain protein and other valuable nutrients which can then be used in numerous applications, may not develop as currently expected.

Microbial protein is composed of spent microbes from LanzaTech commercial facilities. These microbes are comprised of proteins and other valuable nutrients and have performed the task of gas fermentation, have been extracted from the relevant commercial unit and are no longer viable. These materials can be isolated and used in numerous applications, including feed products for livestock and fish, fertilizers for agricultural applications, and protein extract-based products. While we believe many of these markets are large and diverse, with stakeholders actively seeking sustainable and nutritious inputs, we cannot be certain that these markets will materialize or that customers will purchase our protein products in sufficient quantities. With only one commercial customer that is currently selling residual microbial protein as a component in fish and livestock feed products, this business has a limited commercial history. Our protein products business may not develop to the extent currently expected, which may adversely affect our business and prospects.

Natural or man-made disasters, social, economic and political instability, and other similar events may significantly disrupt our and our industry partners' businesses, and negatively impact our results of operations and financial condition.

Our corporate headquarters are located in Skokie, Illinois and we work with industry partners in multiple other locations, including in China, Japan, India, Canada, Australia, Italy, Spain, UK, Netherlands and South Africa. These locations, in particular a number of our current and potential non-U.S. locations, may be subject to social, economic and political instability, such as social uprisings. Any of our or our industry partners' facilities may be harmed or rendered inoperable by natural or man-made disasters, including earthquakes, tornadoes, hurricanes, wildfires, floods, tsunamis, nuclear disasters, acts of terrorism or other criminal activities, the imposition or heightening of sanctions or other economic or military measures in relation to the current conflicts in Europe and the Middle-East, infectious disease outbreaks and power outages, which may render it difficult or impossible for us or our industry partners to operate our businesses for some period of time. Our and our industry partners' facilities would likely be costly to repair or replace, and any such efforts would likely require substantial time. Any disruptions in our or our industry partners' operations could negatively impact our business and results

of operations, and harm our reputation. Our or our industry partners' disaster recovery plans may not be sufficient to address an actual disaster, in particular any events that negatively impact our or our industry partners' physical infrastructures. In addition, we and our industry partners may not carry sufficient business insurance to compensate for losses that may occur. Any such losses or damages could have a material adverse effect on our results of operations and financial condition, and success as an overall business.

Governmental programs designed to incentivize the production and consumption of low-carbon fuels and carbon capture and utilization, may be implemented in a way that does not include products produced using our novel technology platform and process technologies or could be repealed, curtailed or otherwise changed, which would have a material adverse effect on our business, results of operations and financial condition.

We and other participants in the biomass-based and low-carbon fuel industry rely on governmental programs requiring or incentivizing the production and consumption of fuels with lower carbon intensity than conventional fossil fuels and carbon capture and utilization. Biomass-based and low-carbon fuel has historically been more expensive to produce than petroleum-based fuel and these governmental programs support a market for biomass-based and low-carbon fuel that might not otherwise exist.

One of the most important of these programs is the Renewable Fuel Standard II ("RFS II"), a Federal law which requires that transportation fuels in the United States contain a minimum amount of renewable fuel. This program is administered by the Environmental Protection Agency ("EPA"). The EPA's authority includes setting annual minimum aggregate levels of consumption in four "nested" renewable fuel categories, including categories in which our fuel competes (including advanced biofuel, biomass-based diesel and cellulosic biofuel). The parties obligated to comply with this renewable volume obligation ("RVO"), are petroleum refiners and petroleum fuel importers. The petroleum industry is strongly opposed to the RFS II program and can be expected to continue to press for changes both in the RFS II program itself and in the way that it is administered by the EPA. The EPA has not approved LanzaTech-derived ethanol from industrial emissions as a Renewable Identification Number ("RIN") generating fuel (i.e., a fuel that generates credits) under the RFS II program.

The United States Congress could repeal, curtail or otherwise change the RFS II program in a manner adverse to us, such as by excluding products produced using our novel technology platform and process technologies. Similarly, the EPA could curtail or otherwise change its administration of the RFS II program in a manner adverse to us, including by not increasing or even decreasing the RVO, by waiving compliance with the RVO or otherwise. Furthermore, judicial review of the EPA's actions, including any judicial decisions that the EPA failed to adequately evaluate the environmental impacts of RFS II, could create uncertainty in the administration of the RFS II program. In addition, while Congress specified RFS II volume requirements through 2022 (subject to adjustment in the rule making process), beginning in 2023 required volumes of renewable fuel will be largely at the discretion of the EPA (in coordination with the Secretary of Energy and Secretary of Agriculture), which must set the volumes after evaluating a set of particular statutory factors. We cannot predict what changes, if any, will be instituted or the impact of any changes on our business, although adverse changes could seriously harm our business, results of operations and financial condition.

The California Low Carbon Fuel Standard ("LCFS"), is another program that provides a strong incentive for production of renewable diesel and alternative jet fuel, and fuels produced through methods involving carbon capture and utilization. The LCFS could be repealed or amended in a manner that eliminates or reduces this incentive, or could be implemented in a way that excludes or negatively affects products produced using our novel technology platform, such as by assigning a lower carbon intensity to a fuel pathway produced using a competitor's technology.

Additionally, while the efforts of other jurisdictions to mitigate climate change are expected to result in the adoption of similar programs as the RFS II program or LCFS, increasing stakeholder scrutiny of the greenhouse gas ("GHG"), reduction benefits attributable to low-carbon fuels production and consumption could dampen interest in the adoption of similar programs. While the products produced using our process technologies generally compare favorably with conventional low-carbon fuels, public sentiment against reliance upon low-carbon fuels or carbon capture and utilization as pathways to deep decarbonization could adversely affect our market opportunities.

Any decline in the value of carbon credits or other incentives associated with products produced using our process technologies could harm our results of operations, cash flow and financial condition.

The value of products produced using our process technologies may be dependent on the value of carbon credits, programs relating to low-carbon materials and products standards and other similar regulatory regimes or the implicit value of decarbonized materials. The value of these credits fluctuates based on market and regulatory forces outside of our control. There is a risk that the supply of low-carbon alternative materials and products outstrips demand, resulting in the value of carbon credits declining. Any such declines could mean that the economic benefits from our industry partners' efforts to

decarbonize their operations might not be realized. Any decline in the value of carbon credits or other incentives associated with products produced using our process technologies could harm our results of operations, cash flow and financial condition. The value of carbon credits and other incentives may also be adversely effected by legislative, agency, or judicial determinations.

We expect to rely on a limited number of industry partners for a significant portion of our near-term revenue.

We currently have agreements with a limited number of industry partners, from which we expect to generate most of our revenues through the end of 2024. Entities in which the Shougang Joint Venture holds a controlling interest operate the four currently operating commercial scale facilities that produce low carbon ethanol using our process technology. In addition, commercial scale facilities are in advanced stages of commissioning by our partners ArcelorMittal and IndianOil. The facilities are expected to finalize commissioning in the coming months. The loss of one or more of our industry partners, a substantial reduction in the scope of their projects, their failure to exercise customer options, their unwillingness to extend contractual deadlines if we are unable to meet production requirements, their inability to perform under their contracts or a significant deterioration in their financial condition could harm our business, results of operations and financial condition. If we fail to perform under the terms of these agreements, the industry partners could seek to terminate these agreements or pursue damages against us, including liquidated damages in certain instances, which could harm our business.

Our revenue is relatively concentrated within a small number of key customers, and the loss of one or more of such key customers may adversely affect our business, financial condition, and results of operations.

For the fiscal year ended December 31, 2023, our largest contracting entity accounted for 38% of our revenue. For the fiscal year ended December 31, 2022, our largest contracting entity accounted for 22% of our revenue. Our customer mix can change rapidly, and we may see changes in customer concentrations in the future. If or when any of our significant customer relationships terminate for any reason, and we are not able to replace those customers and associated revenues, our business, financial condition, and results of operations may be adversely affected.

We and our industry partners are subject to extensive international, national and subnational laws and regulations, and any changes in relevant laws or regulations, or failure to comply with these laws and regulations, could have a material adverse effect on our business and could substantially hinder our and our partners' ability to manufacture and commercialize products produced using our process technologies.

We and our industry partners are subject to extensive international, national and subnational laws and regulations relating to the production of renewable fuels, the protection of the environment and in support of the ethanol industry at large. These laws, their regulatory requirements and their implementation and enforcement impact our existing and potential business operations by imposing restrictions on our and our industry partners':

- existing and proposed business operations or the need to install enhanced or additional controls;
- need to obtain and comply with permits and authorizations;
- liability for exceeding applicable permit limits or legal requirements;
- specifications related to the ethanol and other products we or our industry partners market and produce using our process technologies;
- criteria for assessing the carbon intensity and GHG emissions attributable to fuels produced using our process technologies.

In the normal course of business, we and our industry partners may be involved in administrative or legal proceedings under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, the Resource Conservation and Recovery Act of 1976 ("RCRA") in the United States, and similar environmental laws across the globe relating to the designation of certain sites for investigation or remediation with respect to environmental risks, the disposal of hazardous waste, and reduction of the hazards associated with storage, handling and transportation of the products we and our industrial partners produce. Potential consequences of these proceedings can include the need to pay for remediation of contaminated sites, the costs of which can be significant and uncertain.

Likewise, in the normal course of business, we and our industry partners may need to obtain and comply with air emissions permits pursuant to the Clean Air Act and water discharge permits pursuant to the Clean Water Act in the United States, and similar environmental permits and authorizations across the globe relating to air and water emissions. Potential changes to regulatory, permit and authorization standards, requirements or processes may result in uncertainty and additional costs for us and our industry partners.

Furthermore, GHG emissions are subject to environmental laws and regulations in the various jurisdictions in which we and our industry partners have operations. Some of our and our industry partners' operations are within jurisdictions that have or are developing regulatory regimes governing emissions of GHGs, including carbon dioxide ("CO₂"). These include existing coverage under the European Union Emission Trading System, the California cap and trade scheme, India's Performance, Achieve and Trade scheme, South Africa's Trade Exposure and Greenhouse Gas Benchmark Regulations, the Tokyo Cap-and-Trade Program, China's Emission Trading Scheme, related subnational programs and any potential expansions of these policies or related policies. In addition, the EPA requires mandatory reporting of GHG emissions and is regulating GHG emissions for new construction and major modifications to existing facilities. The EPA and California regulate the amount of GHGs that may be emitted by new motor vehicles, including light-, medium-, and heavy-duty vehicles. The EPA sets GHG standards for new commercial airplanes. California and several states also implement zero-emission vehicle standards, which require manufacturers to produce and sell an increasing volume of electric vehicles. These and related regulations could be implemented and developed in ways that reduce or eliminate reliance on carbon-based fuels in transportation, for example, by hastening the widespread adoption of electricity or hydrogen as a fuel source, in lieu of low-carbon fuels, for certain categories of transportation vehicles.

Increased public concern surrounding the emission of GHGs may result in more international, national or subnational requirements to reduce or mitigate the effects of GHG emissions. Although uncertain, these developments could increase the costs related to the application of our fermentation technology. Additionally, although governmental policies to reduce GHG emissions may continue to incentivize the production of low-carbon fuels and carbon capture, it is also possible that such policies could be altered in a way that may negatively impact our growth, increase our and our industry partners' operating costs, or reduce demand for our technology. We cannot predict the manner or extent to which such policy or legislation may affect our industry partners and ultimately harm or help our business or the carbon capture industry in general.

Our business could be affected in the future by additional international, national and subnational regulation, pricing of GHG emissions or other climate change legislation, regulation or agreements. It is difficult at this time to estimate the likelihood of passage, or predict the potential impact, of any additional legislation, regulations or agreements. Potential consequences of new obligations could include increased technology, transportation, material, and administrative costs and may require us to make additional investments in our operations. As we continue distributing our technology to our target markets, international, national or subnational government entities may seek to impose regulations or competitors may seek to influence regulations through lobbying efforts.

Any changes in laws or regulations or failure by us or our industry partners to comply with applicable regulatory laws and regulations could have a material adverse effect on our reputation as well as our business, results of operations and financial condition and could substantially hinder our and our partners' ability to manufacture and commercialize products produced using our process technologies.

If scientists, policy makers, and other actors convince governments and corporations to enact policies that disfavor or disincentivize the production of carbon-based fuels and the development and deployment of carbon capture and utilization technology, it could harm our business, results of operations, and financial condition

There are a number of scientists, policy makers and other actors who believe carbon capture and utilization technologies will prolong the life of high-carbon sectors and impede the transition to renewable energy sources. Such individuals believe that using the carbon capture and utilization process to produce fuels, such as ethanol, defers the emission of CO₂ into the atmosphere and that anything that promotes the adoption of low-carbon fuels and advanced liquid fuels (other than hydrogen produced via electrolysis) will result in "locking in" a carbon economy from which the world should be moving away. These scientists, policy makers and other actors advocate for the adoption of regulations and incentives that would reduce or eliminate reliance on carbon-based fuels in favor of the adoption of electricity and hydrogen as fuel sources.

If scientists, policy makers and other actors are successful in convincing governments and corporations to enact policies that disfavor, or changes in government administrations result in shifts in policy that disincentivize, the production of carbon-based fuels and the development and deployment of carbon capture and utilization technology, it could negatively impact the demand for products produced using our process technologies and our ability to maintain and develop relationships with our strategic partners, which would harm our business, results of operations and financial condition. The viability of our business model also could be impacted if, over time, popular, government and corporate support continues to gravitate away from the use of carbon-based fuels toward the predominant use of electricity and hydrogen as fuel sources.

We and our industry partners use hazardous materials and must comply with applicable environmental, health and safety laws and regulations. Any claims relating to improper handling, storage or disposal of these materials or noncompliance with applicable laws and regulations could be time consuming and costly and could adversely affect our business and results of operations.

We and our industry partners use hazardous chemicals and biological materials and are subject to a variety of international, national and subnational laws and regulations governing the use, generation, manufacture, storage, handling and disposal of these materials, including RCRA and the Occupational Safety and Health Act of 1970. Although we and our industry partners have implemented safety procedures for handling and disposing of these materials and waste products, we cannot be sure that our safety measures are compliant with legal requirements or adequate to eliminate the risk of accidental injury or contamination. In the event of contamination or injury, we could be held liable for any resulting damages, and any liability could exceed our insurance coverage. There can be no assurance that neither we nor any of our industry partners will not violate environmental, health and safety laws as a result of human error, accident, equipment failure or other causes.

Compliance with applicable environmental, health and safety laws and regulations is expensive and time consuming, and the failure to comply with past, present or future laws or regulations could result in the imposition of fines, third-party property damage, product liability and personal injury claims, investigation and remediation costs, the suspension of production or a cessation of operations. Our liability in such an event may exceed our total assets. Liability under environmental laws can be joint and several and without regard to comparative fault. Environmental laws and regulations could become more stringent over time, imposing greater compliance costs and increasing risks and penalties associated with violations, which could impair our research, development or production efforts and harm our business. Accordingly, violations of present and future environmental laws or regulations by us or any of our industry partners could restrict our ability to develop and commercialize products using our process technologies, build out or expand facilities, or pursue certain technologies, and could require us and our industry partners to acquire equipment or incur potentially significant costs to comply with environmental regulations. In addition, our hazardous materials and environmental laws and regulations-related risks may augment as we expand our international operations, including imposition of laws and regulations impacting our ability to transfer hazardous chemicals and biological materials between countries.

We may be subject to product liability claims, which could result in material expense, diversion of management time and attention and damage to our business, reputation and brand.

The products produced using our process technologies that we and our industry partners commercialize may contain undetected defects or impurities that are not discovered until after the products have been used by customers or incorporated into products for end-users. This could result in claims from customers or others, damage to our business and reputation and brand or significant costs to correct the defect or impurity. Therefore, the sale of products produced using our process technologies entails the risk of product liability claims. Any product liability claim brought against us, regardless of its merit, could result in material expense, diversion of management time and attention, damage to our business, reputation and brand and cause us to fail to retain existing industry partners or to fail to attract new industry partners.

Ethical, legal and social concerns about genetically engineered products and process technologies that use genetically engineered supplies could limit or prevent the use of products produced using our process technologies and could limit our revenues.

The use of genetically engineered products and process technologies that use genetically engineered supplies is subject to laws and regulations in many countries, including by the EPA under the Toxic Substances Control Act of 1976, some of which are new or still evolving. Public attitudes about the safety and environmental hazards of genetically engineered products and processes, and ethical concerns over genetic research, could influence public acceptance of our technology, processes and products produced using our process technologies that use genetically engineered supplies.

Our ability to develop and commercialize one or more of our technologies or process technologies could be limited by additional factors, including:

- public attitudes regarding, and potential changes to laws governing, ownership of genetic material, which could harm our intellectual property rights with respect to our genetic material and discourage others from supporting, developing or commercializing products produced using our process technologies; and
- governmental reaction to negative publicity concerning genetically engineered organisms, which could result in greater government regulation of genetic research, greater government regulation of genetic-related feedstock sources, or other adverse governmental regulatory restrictions.

The subject of genetically engineered organisms has received negative publicity, which has aroused public debate. This adverse publicity could lead to greater regulation and trade restrictions on imports of genetically engineered products. These trends could result in increased expenses, delays or other impediments to our programs or the public acceptance and commercialization of the products produced using our process technologies.

Our genetically engineered microbes may be subject to regulatory scrutiny and may face future development and regulatory difficulties. Additionally, failure to obtain import permits in a timely fashion for all relevant microbes in jurisdictions with our industry partners could adversely affect our business and continuity of operations.

Some of our genetically engineered microbes may have significantly altered characteristics compared to those found in the wild and may be subject to regulatory scrutiny. As a result, we may be required to implement additional costly measures to obtain and maintain our regulatory permits, licenses, authorizations and approvals. To the extent such regulatory scrutiny or changes impact our ability to execute on existing or new programs for our industry partners, or make doing so more costly or difficult, our business, financial condition, or results of operations may be adversely affected.

Because the use of genetically engineered products and process technologies that use genetically engineered supplies is subject to laws and regulations in many countries, some of which are new or still evolving, regulatory requirements, including those related to import permits, may continue to change in various jurisdictions. If such regulatory requirements prevent us from obtaining import permits for jurisdictions where we have industry partners, such changes may impact our ability to execute on existing or new programs for our industry partners, or make doing so more costly or difficult, which may adversely affect our business, financial condition, results of operations, market share and prospects.

Our government grants are subject to uncertainty, which could harm our business and results of operations.

We have sought and may continue to seek to obtain government grants in the future to offset a portion of the costs of our research and development, commercialization and other activities. We cannot be certain that we will be able to secure any such government grants in a timely fashion, or at all. Moreover, any of our existing grants or new grants that we may obtain may be terminated, modified or recovered by the granting governmental body. If such grant funding is discontinued, our revenue and cash received from grants will decrease. If we do not receive grants we are counting on, our liquidity will be impacted, which will impact our ability to grow or maintain our business.

We may also be subject to additional regulations and audits by government agencies as part of routine audits of our activities funded by our government grants. As part of an audit, these agencies may review our performance, cost structures and compliance with applicable laws, regulations and standards. Funds available under grants must be applied by us toward the research and development programs specified by the granting agencies, rather than for all of our programs generally. If any of our costs are found to be allocated improperly, the costs may not be reimbursed and any costs already reimbursed may have to be refunded. Accordingly, an audit could result in an adjustment to our revenues and results of operations.

The requirements of being a public company may strain our resources and divert management's attention, and the increases in legal, accounting and compliance expenses that will result from being a public company may be greater than we anticipate.

As a result of the Business Combination, we have become a public company, and as such, we have and will continue to incur significant legal, accounting and other expenses that we did not incur as a private company. We are subject to the reporting requirements of the Exchange Act, and we are also required to comply with the applicable requirements of the Sarbanes-Oxley Act and the Dodd-Frank Wall Street Reform and Consumer Protection Act, as well as the rules and regulations subsequently implemented by the SEC and the listing standards of Nasdaq, including changes in corporate governance practices and the establishment and maintenance of effective disclosure and financial controls. Compliance with these rules and regulations is burdensome. Our management and other personnel have recently devoted and will continue to devote a substantial amount of time to these compliance initiatives. Moreover, these rules and regulations increase our historical legal and financial compliance costs and make some activities more time-consuming and costly. For example, these rules and regulations may make it more difficult and more expensive for us to obtain director and officer liability insurance than we obtained as a private company, and could also make it more difficult for us to attract and retain qualified members of the LanzaTech Board as compared to when we were a private company. In particular, we expect to incur significant expenses and devote substantial management effort toward ensuring compliance with the requirements of Section 404 of the Sarbanes-Oxley Act. We hired additional accounting and financial staff, and engaged outside consultants, all with appropriate public company experience and technical accounting knowledge and maintained an internal audit function, which will increase our operating expenses. Moreover, we could incur additional compensation costs in the event that we decide to pay cash compensation closer to that of other public companies, which would increase our general and administrative expenses and could materially and adversely affect our profitability.

Our management has limited experience in operating a public company.

Our executive officers and directors have limited experience in the management of a publicly traded company subject to significant regulatory oversight and reporting obligations under the federal securities laws. Our management team's limited experience in dealing with the increasingly complex laws pertaining to public companies could be a significant disadvantage in that it is likely that an increasing amount of their time may be devoted to these activities, which will result in less time being devoted to our management and growth. We may not have adequate personnel with the appropriate level of knowledge, experience and training in the accounting policies, practices or internal controls over financial reporting required of public companies in the United States. It is possible that we will be required to expand our employee base and hire additional employees to support our operations as a public company, which will increase our operating costs in future periods.

If we experience a significant disruption in our information technology systems, including security breaches, or if we fail to implement new systems and software successfully, our business operations and financial condition could be adversely affected.

We depend on information technology systems to, among other functions, control our manufacturing processes, process orders and invoices, collect and make payments, interact with industry partners and suppliers, manage inventory and otherwise conduct our business. We also depend on these systems to respond to inquiries, contribute to our overall internal control processes, maintain records of our property, plant and equipment and record and pay amounts due to vendors and other creditors. The failure of our information technology systems or of information technology systems maintained by third parties to perform as we anticipate could disrupt our business and could result in transaction errors, processing inefficiencies and the loss of sales and industry partners. As we implement planned upgrades or changes to systems, we may also experience interruptions in service, loss of data or reduced functionality and other unforeseen material issues which could adversely impact our ability to provide quotes, take orders and otherwise run our business in a timely manner. In addition, if our new systems fail to provide accurate and increased visibility into pricing and cost structures, it may be difficult to improve or maximize our profit margins. As a result, our results of operations could be adversely affected.

In addition, cyber-attacks or security breaches could compromise our trade secrets or other confidential, business critical information, cause a disruption in our operations, or harm our reputation. Our information technology systems are subject to potential disruptions, including significant network or power outages, service disruptions or interruptions from third-party information technology service providers, software or hardware errors, cyberattacks, computer viruses, malware, ransomware events, other malicious codes and/or unauthorized access attempts, denial-of-service attacks, phishing schemes, fraud, or other disruptive problems, any of which, if successful, could result in data leaks or otherwise compromise our confidential or proprietary information and disrupt our operations. Despite our efforts to protect sensitive information and comply with and implement data security measures, there can be no assurance that any controls and procedures that we have in place will be sufficient to protect us. Further, as cyber threats are continually evolving, our controls and procedures may become inadequate and we may be required to devote additional resources to modify or enhance our systems in the future. We may also be required to expend resources to monitor for and remediate cyber-related incidents or to enhance and strengthen our cyber security, including by deployment of additional personnel and technical protection measures, further training of employees, changing vendor control and monitoring practices, and engaging third-party experts and consultants. Any such disruptions to our information technology systems, breaches or compromises of data, or misappropriation of information could result in violations of privacy and other laws, litigation, fines, negative publicity, lost sales or business delays, any of which could have a material adverse effect on our business, financial condition or results of operations.

International sales by us and our industry partners expose us and our industry partners to the risk of fluctuation in currency exchange rates, rates of foreign inflation and trade restrictions, which could adversely affect our results of operations.

Because we and our industry partners commercialize and sell products produced using our process technologies outside of the United States, a portion of our and our industry partners' revenues is generated outside of the United States and we derive some of our revenues from our industry partners in their local currencies. As a result, our revenues and results of operations are subject to foreign exchange fluctuations, which we may not be able to manage successfully. We bear the risk that the rate of inflation in the foreign countries where we and our industry partners incur costs and expenses or the decline in value of the U.S. dollar compared to those foreign currencies, will increase our costs as expressed in U.S. dollars. The prices of the products produced using our process technologies may not be adjusted to offset the effects of inflation on our or our industry partners' cost structure, which could increase costs and reduce net operating margins. If we do not successfully manage these risks through hedging or other mechanisms, our revenues and results of operations could be adversely affected.

Changes in interest rates and capital availability and other market factors may impact investment and financing decisions by our industry partners, which could adversely affect our results of operations.

We depend on partnering, licensing, and contractual relationships with our industry partners that implement our process technologies, as well as investments by such partners, as a significant source of financing. Changes in credit and capital market conditions, including changes in interest rates and capital availability, may increase the cost of financing for our industry partners, which may limit their ability or willingness to enter into partnering agreements with us or to further invest in their facilities that implement our process technologies. Such changes may also make it more difficult for us to obtain favorable terms for any future partnership arrangements. To the extent that these changes impact investment and financing decisions by our industry partners in a manner that is adverse to us, such changes could adversely affect our results of operations.

Any failure by us to manage acquisitions and other significant transactions successfully may have a material adverse effect on our results of operations, financial condition, and cash flows.

From time to time, we may consider opportunities to acquire other companies, products or technologies that may enhance our capabilities, expand the breadth of our markets or partner base, or advance our business strategies. Potential acquisitions involve numerous risks, including: problems assimilating the acquired service offerings, products or technologies, issues maintaining uniform standards, procedures, quality control and policies, unanticipated costs associated with acquisitions, diversion of management's attention from our existing business, risks associated with entering new markets in which we have limited or no experience, increased legal and accounting costs relating to the acquisitions or compliance with regulatory matters, and unanticipated or undisclosed liabilities of any target.

We have no current commitments with respect to any acquisition. We do not know if we will be able to identify acquisitions we deem suitable, whether we will be able to successfully complete any such acquisitions on favorable terms or at all, or whether we will be able to successfully integrate any acquired service offerings, products or technologies. Our potential inability to manage acquisitions and other significant transactions successfully or to integrate any acquired business, products or technologies effectively may adversely affect our business, results of operations and financial condition.

We believe our company culture has contributed to our success, and if we cannot maintain this culture as we grow our business could be harmed. What made us successful to date will not necessarily be what makes us successful in the future. The skills and capabilities required to manage the business must evolve as the business evolves

We believe that our culture has contributed to our success to date. We have invested in building a strong corporate culture and believe it is one of our most important and sustainable sources of competitive advantage. Our corporate culture is team-oriented, community-based and rooted in company values to promote close alignment between employees throughout the organization. Community strengthening events and team activities encourage cross-team and cross-location interactions. This foundation promotes an understanding of our organizational values and ensures that our team members stand for and contribute to the vision and objectives of the company. Any failure to maintain our culture could negatively affect our ability to retain and recruit personnel, which is critical to our growth, and to effectively focus on and pursue our corporate objectives. In addition, as we develop the systems and processes associated with being a public company, we may find it difficult to maintain these important aspects of our culture. Furthermore, as we grow and evolve on an international scale, we may find it increasingly difficult to maintain these beneficial aspects of our corporate culture throughout our global footprint. If we fail to maintain our corporate culture, or if we are unable to retain or hire key personnel that contribute positively to our corporate culture, our business and competitive position may be harmed.

Causes of supply chain challenges could result in delays or increased costs for us and our partners deploying our technologies.

The products that we and our partners produce using our process technologies must be delivered to our industry partners and involve a variety of inputs which must be procured and delivered to our facilities. Our suppliers, sub-contractors and industry partners have been disrupted by certain issues, including worker absenteeism, quarantines, restrictions on employees' ability to work, office and factory closures, disruptions to ports and other shipping infrastructure, border closures or other travel or health-related restrictions. Supply chain disruptions may also occur from time to time due to a range of factors beyond our control, including, but not limited to, climate change, increased costs of labor, freight costs and raw material prices along with a shortage of qualified workers. Such issues may cause delays in the delivery of, or increases in the cost of, the inputs used in our process technologies, potentially resulting in delays or increased costs for us and our partners deploying our technologies or for our industry partners purchasing our products, which may materially impact our business, financial condition and results of operations.

We and our industry partners have a limited operating history utilizing our technology and different feedstocks, which may make it difficult to evaluate our future viability and predict our future performance.

We and our partners have a limited operating history utilizing our process technologies and different feed stocks on which to base an evaluation of our business and prospects. Our operating results are not predictable and our historical results may not be indicative of our future results. Few peer companies with our business model exist and none have yet established long-term track records at scale that might assist us in predicting whether our business model and strategy can be implemented and sustained over an extended period of time. It may be difficult for you to evaluate our potential future performance without the benefit of established long-term track records from companies implementing a similar business model. We may encounter unanticipated problems as we continue to refine our business model and process technologies, and may be forced to make significant changes to our anticipated sales and revenue models to compete with our competitors' offerings, which may adversely affect our results of operations and profitability.

We have not yet generated material revenues from new business lines and our revenue forecast must be considered in light of the uncertainty and risks frequently encountered by companies in their early stage of development.

We have not yet generated material revenues from new business line such as the sale of equipment. We are subject to the risks inherent to early-stage companies seeking to develop, market and distribute new products, particularly companies in evolving markets such as renewable energy and technology. The likelihood of our success must be considered in light of the problems, expenses, difficulties, complications and delays frequently encountered in connection with the development, introduction, marketing and distribution of new products in a competitive environment.

Such risks include dependence on the success and acceptance of our products, the ability to attract and retain a suitable partner base, and the management of growth. To address these risks, we must, among other things, further develop and enhance our process technologies, generate increased demand for our products, attract a sufficient partner base, collaborate with partners, respond to competitive developments, and attract, retain and motivate qualified personnel. We are thus subject to many of the risks common to companies in their early stage of development, including under-capitalization, cash shortages, limitations with respect to personnel, financial, and other resources and lack of revenues.

Our ability to use our net operating loss carryforwards and certain other tax attributes may be limited.

We have incurred losses during our history. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire, if at all. As of December 31, 2023, we had approximately \$321 million in U.S. federal net operating loss carryovers to offset future taxable income.

Under the Tax Act (as defined below), as modified by the CARES Act (as defined below), U.S. federal NOL carryforwards generated in taxable periods beginning after December 31, 2017, may be carried forward indefinitely, but the deductibility of such net operating loss carryforwards in taxable years beginning after December 31, 2020, is limited to 80% of taxable income. It is uncertain if and to what extent various states will conform to the Tax Act or the CARES Act.

In addition, our NOL carryforwards are subject to review and possible adjustment by the IRS, and state tax authorities. Under Sections 382 and 383 of the Code, our federal net operating loss carryforwards and other tax attributes may become subject to an annual limitation in the event of certain cumulative changes in the ownership of our stock. An "ownership change" pursuant to Section 382 of the Code generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company's stock increase their ownership (as measured by value) by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Our ability to utilize our NOL carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including potential changes in connection with our migration from New Zealand to the United States, the Business Combination or other transactions. Similar rules may apply under state tax laws. We have not yet determined the amount of the cumulative change in our ownership resulting from the Business Combination or other transactions, or any resulting limitations on our ability to utilize our net operating loss carryforwards and other tax attributes. If we earn taxable income, such limitations could result in increased future income tax liability to us and our future cash flows could be adversely affected. We have recorded a valuation allowance related to our NOL carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Changes in U.S. and foreign tax laws could have a material adverse effect on our business, cash flow, results of operations or financial conditions.

The tax regimes we are subject to or operate under, including income and non-income taxes, are unsettled and may be subject to significant change. Changes in tax laws, regulations, or rulings, or changes in interpretations of existing laws and

regulations, could materially affect our financial position and results of operations. For example, the 2017 Tax Cuts and Jobs Act, or Tax Act, made broad and complex changes to the U.S. tax code, including changes to U.S. federal tax rates, additional limitations on the deductibility of interest, both positive and negative changes to the utilization of future NOL carryforwards, and allowing for the expensing of certain capital expenditures. The Coronavirus Aid, Relief, and Economic Security Act, or CARES Act, has already modified certain provisions of the Tax Act and the United States Congress is considering new proposed tax legislation. The exact impact of the Tax Act and the CARES Act for future years is difficult to quantify, but these changes could materially affect our effective tax rate in future periods, in addition to any changes made by new tax legislation.

The Organization for Economic Cooperation and Development has been working on a Base Erosion and Profit Shifting Project and is expected to continue to issue guidelines and proposals that may change various aspects of the existing framework under which our tax obligations are determined in many of the countries in which we do business. Similarly, the European Commission and several countries have issued proposals that would change various aspects of the current tax framework under which we are taxed. These proposals include changes to the existing framework to calculate income tax, as well as proposals to change or impose new types of non-income taxes, including taxes based on a percentage of revenue.

As we expand the scale of our international business activities, these types of changes to the taxation of our activities could increase our worldwide effective tax rate, increase the amount of taxes imposed on our business, and harm our financial position. Such changes may also apply retroactively to our historical operations and result in taxes greater than the amounts estimated and recorded in our financial statements.

Political and economic uncertainty, including changes in policies of the Chinese government or in relations between China and the United States, may impact our revenue and materially and adversely affect our business, financial condition, and results of operations.

We and our partners operate facilities and do business on an international scale, including in China. Political and economic uncertainty, including changes in policies of the Chinese government or relations between China and the United States, may impact us adversely. There is significant uncertainty about the future relationship between China and the United States with respect to trade policy, government relations and treaties. Political uncertainty surrounding Chinese government policies, international trade disputes between China and the United States, and protectionist measures could result in increased trade controls and regulations. Heightened tensions resulting in restrictions and additional regulations may negatively impact our ability to send our microbes and other supplies to our plants in China, to purchase and ship ethanol out of China, or to gain ethanol-related licenses in China.

The implementation of sanctions on certain Chinese individuals or entities may result in complications for our interactions with LanzaTech China Limited, the Shougang Joint Venture and our joint venture partners in China, or with certain of our strategic investors located in China, including Sinopec. Sinopec is a Chinese investment platform that was jointly established in 2018 by China Petrochemical Corporation (“Sinopec Group”) and China Petroleum & Chemical Corporation (“Sinopec Corp”). Sinopec Corp is a majority-owned subsidiary of Sinopec Group, which is controlled by the State-owned Assets Supervision and Administration Commission of the State Council of the People’s Republic of China. Based on publicly available information provided by China Petroleum & Chemical Corporation, as of February 2024, the China Petroleum & Chemical Corporation holds, directly or indirectly, 49% of the equity/voting rights of Sinopec. As a result of potential trade and investment restrictions, we may be unable to complete an investment in any joint venture that we may enter into with Sinopec. Sanctions also may negatively impact our ability to repatriate dividends from a Chinese joint venture and may result in further costs or delays as a result of currency controls. These increased costs and restrictions may reduce our margins or reduce demand for our products if prices increase for our industry partners, and could adversely affect our business, financial condition, and results of operations.

Our ability or the ability of our partners to operate in China may be impaired by changes in Chinese laws and regulations, including those relating to taxation, environmental regulation, restrictions on foreign investment, and other matters, which can change quickly with little advance notice.

While we are headquartered in Skokie, Illinois, we are a global business and have operations in China. This includes a minority ownership stake in the Shougang Joint Venture, 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. 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 three commercial scale facilities using our process technology, which, in addition to its use as fuel, is transported and processed for use in consumer products.

The Chinese government has exercised and continues to exercise substantial control over every sector of the Chinese economy through regulation and state ownership. The central Chinese government or local governments having jurisdiction within China may impose new, stricter regulations, or interpretations of existing regulations, that would require additional expenditures and efforts on our part to ensure our compliance with such regulations or interpretations. As such, our operations and the operations of our joint venture partners and our sales and licenses to partners located in China may be subject to governmental and regulatory interference in the provinces in which they operate. We, our joint venture and other partners could also be subject to regulation by various political and regulatory entities, including local and municipal agencies and other governmental subdivisions. Regulations may be imposed or change quickly with little advance notice. Our ability, and the ability of our joint venture and other partners, to operate in China may be impaired by any such laws or regulations, or any changes in laws and regulations in China. We and our joint venture and other partners may incur increased costs necessary to comply with existing and future laws and regulations or penalties for any failure to comply.

Our operations and financial results may be impacted if the Chinese government determines that the contractual arrangements constituting part of the Shougang Joint Venture VIE structure do not comply with Chinese regulations, or if these regulations change or are interpreted differently in the future.

We have 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. We also hold a minority ownership stake in the Shougang Joint Venture. We have determined the Shougang Joint Venture to be a VIE for which we are not the primary beneficiary. The VIE structure was implemented in order 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. If the Chinese government determines that the contractual arrangements constituting part of the VIE structure do not comply with Chinese regulations, or if these regulations change or are interpreted differently in the future, it could result in a material change to our operations. This could result in our inability to assert contractual control over our intellectual property and other assets in the Shougang Joint Venture, or cause a material change in the value of the shares of the common stock.

We and our partners may be subject to regulatory actions by the Chinese government targeting concerns related to data security and monopolistic behavior.

Recent statements and regulatory actions by the Chinese government have targeted companies whose operations involves cross-border data security or anti-monopoly concerns. Although we are incorporated and headquartered in the United States, we may still be subject to certain Chinese laws due to our business operations in China. These operations include several strategic investors located in China, including Sinopec, a core team of technical, business and administrative professionals at our office in Shanghai, and our minority ownership stake in, and contractual commitments with, the Shougang Joint Venture.

On June 10, 2021, China promulgated the PRC Data Security Law (the “DSL”), which became effective on September 1, 2021. The DSL intends to regulate data processing activities, ensure data security, promote data development and utilization, protect the data-related rights and interests of individuals and organizations, and safeguard Chinese sovereignty, security and development interests. Article 36 of the DSL provides that any Chinese entity that provides data to foreign judicial or law enforcement agencies without approval from a Chinese authority could be deemed to be in violation of the DSL.

Article 3 of Anti-Monopoly Law of the PRC (the “Anti-Monopoly Law”) prohibits “monopolistic practices,” which include: (a) the conclusion of monopoly agreements between operators; (b) the abuse of dominant market position by operators; and (c) concentration of undertakings which has or may have the effect of eliminating or restricting market competition. Furthermore, according to Article 19 of the Anti-Monopoly Law, the operator will be assumed to have a dominant market position if the following apply: (a) an operator has 50% or higher market share in a relevant market; (b) two operators have 66% or higher market share in a relevant market; or (c) three operators have 75% or higher market share in a relevant market. We believe that neither we nor any of our partners in China have engaged in any monopolistic practices in China, and that recent statements and regulatory actions by the Chinese government do not impact our ability to conduct business, accept foreign investments, or list on a U.S. or other foreign stock exchange. However, there can be no assurance that regulators in China will not promulgate new laws and regulations or adopt new series of interpretations or regulatory actions which may require us and our partners to satisfy new requirements related to these concerns.

Changes in China’s economic, political or social conditions or legal system or government policies could have a material adverse effect on our business and operations.

Our business operations in China include the Shougang Joint Venture, 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. 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. Meanwhile, several additional facilities are being engineered and constructed. Accordingly, our business, financial condition, results of operations and prospects may be influenced to a significant degree by political, economic and social conditions in China generally and by the significant discretion of Chinese governmental authorities. The Chinese government continues to play a significant role in regulating industry development by imposing industrial policies. The Chinese government also exercises significant control over China's economic growth through allocating resources, regulating payment of foreign currency-denominated obligations, setting monetary policy, and providing preferential treatment to particular industries or companies. The increased global focus on environmental and social issues and China's potential adoption of more stringent standards in these areas may adversely impact us or our suppliers.

Furthermore, the Chinese legal system is based in part on government policies and internal rules, some of which are not published on a timely basis or at all. As a result, we or our suppliers may not be aware of our violation of any of these policies and rules until sometime after the alleged violation. In addition, any administrative and court proceedings in China may be protracted, resulting in substantial costs and diversion of resources and management attention. Further, such evolving laws and regulations and the inconsistent enforcement thereof could also lead to failure to obtain or maintain licenses and permits to do business in China, which would adversely affect us or our suppliers in China. Any such disruption, or if one or more of our Chinese suppliers was prevented from operating, could have an adverse impact on our results of operations and financial condition.

We may be subject to risks that the Chinese government may intervene or influence our operations at any time.

Because we have employees located in China and conduct some operations in China, including through our China-based joint venture and at the facilities in China operated by entities in which the Shougang Joint Venture holds a controlling interest using our process technology, we are subject to the risk that the Chinese government may intervene or influence our operations in those locations at any time. However, because our operations in China are largely limited to technology licenses and the production of our low carbon ethanol, we do not expect that such intervention or influence would result in a material change in our operations. Nonetheless, in the event that the Chinese government were to intervene in our operations, we might experience a disruption at the three facilities in China operated by entities in which the Shougang Joint Venture holds a controlling interest using our process technology, or at the facilities in construction, to our joint venture and joint venture partners, to our licenses to partners in China and to our low carbon ethanol production, which could have a material adverse effect on our results of operations.

Products produced by our process technologies compete with or are intended to displace comparable products produced using fossil resources. The market prices for these alternatively produced products and commodities are subject to volatility and there is a limited referenceable market for the more sustainable, waste-based products that our process technologies enable.

Products produced by our process technologies compete with or are intended to displace comparable products produced using fossil resources. The market prices for these alternatively produced products and commodities are subject to volatility and may depend on uncertain consumer demand as well as changing supply of feedstocks. In particular, demand for our products may depend on changing attitudes toward, and the price and availability of, fossil resources.

We do not believe we have any direct competitors that produce products with similar attributes to ours. Due to the limited competition we face, there is a limited referenceable market for the more sustainable, waste-based products that our process technologies enable. It may be difficult to evaluate our potential future performance without the benefit of established long-term track records from companies developing similar sustainable, waste-based products.

Process performance at our partners' plants is dependent on the quality and quantity of the feedstock supplied from the host facility.

We design the parameters to best process the feedstock we expect to receive from the host facility. Although we rigorously test feedgas when a project is being designed in order to determine the expected composition of the feedstock there is no guarantee that the quality and quantity of the feedstock will be identical to the test conditions. Feedstock changes based on day-to-day variability in host company process conditions can be anticipated to some extent, but cannot be fully mitigated.

We have experienced variability in the quality and quantity of feedstock supplied from our operating facilities, and although it is typically in the facilities' best interest to provide consistent and good quality feedstock, which help maintain the high utilization of our process, there is no guarantee that it will be supplied.

The deployment of the technology for alternative waste gas feedstocks can lead to unforeseen issues due to the change in the upstream industrial process.

While we have designed our reactor and process to minimize the amount of mechanical and operational adjustments required for the utilization of different waste gas feedstocks, there is no guarantee that performance will be as expected. Our microbe has proven to be flexible to different feed gas compositions, with tests conducted at pilot-scale using a wide range of CO₂, hydrogen ("H₂") and carbon monoxide ("CO")-containing gases.

Scale-up and commercialization of process technologies for alternative feedstocks without first conducting tests at demonstration scale can introduce some risk. Performance related improvements may not be as fungible as anticipated in scaling up alternative feedstocks.

Risks Related to Our Intellectual Property

Our patent rights may not provide commercially meaningful protection against competition, and we may be unable to detect infringement of our patents.

Our success depends, in part, on our ability to obtain and maintain patent protection and other intellectual property rights to protect our technology from competition. We have adopted a strategy of seeking patents and patent licenses in the United States and in certain foreign countries with respect to certain technologies used in, or relating to, our process technology for developing products. As of December 31, 2023, our overall owned and in-licensed patent portfolio included 1,473 granted patents and 634 pending patent applications across 155 patent families in the United States and in various foreign jurisdictions.

The strength of patents involves complex legal and scientific questions and can be uncertain. The patent applications that we own or license may fail to result in issued patents in the United States or in other foreign countries. Even with regard to the patents that have been issued to us, it is possible that third parties could challenge the validity, enforceability, ownership or scope thereof, which could result in such patents being narrowed, invalidated or held unenforceable. There is a substantial amount of litigation involving patent and other intellectual property rights, including interference and reexamination proceedings before the U.S. Patent and Trademark Office, or oppositions or comparable proceedings in foreign jurisdictions. Furthermore, even if they are unchallenged, our patents and patent applications may not adequately protect our technology or prevent others from designing around our patent claims. In addition, patent laws may change over time, and such changes may impair our ability to maintain, protect or enforce our patents. Moreover, we may not be able to detect unauthorized use of, or take appropriate steps to enforce, our patents rights against third parties. For example, third parties could practice our inventions without authorization, in secret and in territories where we do not have patent protection. Furthermore, despite our efforts and precautions, we may be unable to prevent a third party from copying or otherwise obtaining and using our inventions or other proprietary information or technology without authorization, or from infringing our patents. Such third parties may then try to sell or import products made using our inventions in and into the United States or other territories. We may be unable to prove that such products were made using our inventions, and any legal and contractual remedies available to us may not adequately compensate us.

Additional uncertainty may result from patent reform legislation proposed by the U.S. Congress and other national governments and from legal precedent handed down by the U.S. Court of Appeals for the Federal Circuit, the U.S. Supreme Court and the courts of foreign countries, as they determine legal issues concerning the scope, validity and construction of patent claims. Because patent applications in the United States and many foreign jurisdictions are typically not published until 18 months after filing, or in some cases not at all, and because publication of discoveries in the scientific literature often lags behind the actual discoveries, there is additional uncertainty as to validity of any issued patent. Accordingly, we cannot be certain that any of our patent applications will result in issued patents, or even if issued, be sure of their validity or enforceability. Additionally we cannot predict whether any of our patent rights will be broad enough in scope to provide commercial advantage and prevent circumvention. Also, it may be difficult for us to trace chemicals imported into the United States that are produced by others using microorganisms or processes covered by our patents without our authorization, which will limit our ability to enforce our patent rights against potential infringers. In any event, patents are enforceable only for a limited term.

Differences and uncertainties with respect to legal systems outside the United States could adversely affect the legal protection available to us.

We have and plan to continue partnering with others in building manufacturing facilities using our process technologies in countries other than the United States. However, the laws of some foreign countries do not protect intellectual property rights to the same extent as federal and state laws in the United States. Many companies have encountered significant problems, including delays, in protecting and enforcing intellectual property rights in certain foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to bio-industrial technologies. This could make it difficult for us to stop the misappropriation of our trade secrets or the infringement of our patents or other intellectual property rights. Proceedings to enforce our patents and other proprietary rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business. Such proceedings could also be met with defenses, counterclaims and countersuits attacking the validity, enforceability, ownership and scope of our intellectual property rights, and if such defenses, counterclaims or countersuits are successful, we could lose valuable intellectual property rights in certain jurisdictions. Accordingly, our efforts to enforce our intellectual property rights in such countries could be inadequate to obtain a significant commercial advantage from the intellectual property that we develop. Moreover, the registration of intellectual property is costly and subject to complex rules, regulations and local laws. Outside the United States, we only file our patent applications in selected foreign jurisdictions and therefore will have no patent protection against potential infringers in jurisdictions where we have not applied for patent protection.

We may not be able to operate our business without infringing the proprietary rights of third parties.

Our ability and the ability of our partners to commercialize the products produced using our technology platform depends on the ability to develop, manufacture, market and sell such products without infringing the proprietary rights of third parties. Numerous U.S. and foreign patents and pending patent applications owned by third parties, including parties with whom we may compete, exist in fields including processes that relate to our technology platform and the processes derived using our technology platform. These third parties may allege that our technology platform or the processes derived using our technology platform, or even the methods and organisms themselves, infringe their intellectual property rights, and we may be subject to legal proceedings relating to these claims.

If we are found to infringe the intellectual property rights of a third party, we or our partners could be prohibited from commercializing the product produced using the infringing technology, or from licensing our technology, unless we obtain a license to use the technology covered by the third-party intellectual property rights or are able to design around the relevant third party intellectual property rights. We may be unable to obtain a license on terms acceptable to us, if at all, and we may not be able to redesign our technology or processes to avoid infringement. Even if we are able to redesign technology or processes to avoid an infringement claim, our efforts to design around the third-party intellectual property rights may lead to a less effective or more costly product. In addition, we may be subject to legal proceedings alleging the infringement, misappropriation or other violation of the intellectual property of third parties, which could result in substantial costs and divert our efforts and attention from other aspects of our business. A court could also order us to pay compensatory damages for any infringement, plus prejudgment interest and could, in addition, treble the compensatory damages and award attorney fees. These damages could be substantial and could harm our reputation, business, financial condition and results of operations. A court also could enter orders that temporarily, preliminarily or permanently prohibit us and our partners from making, using, selling or offering to sell one or more of the products that may be produced using our technology platform and processes, or could enter an order mandating that we undertake certain remedial activities.

Trade secrets can be difficult to protect and enforce, and our inability to do so could adversely affect our competitive position.

We rely on trade secrets and confidentiality agreements to protect some of our technology and proprietary know-how that is not patentable, processes for which patents are difficult to enforce, and any other elements of our technology platform that involve proprietary know-how, information or technology that is not covered by patents, particularly where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to maintain and protect. Our strategy for scale-up of production requires us to share confidential information with our business partners and other parties. Our business partners' employees, consultants, contractors or scientific and other advisors may unintentionally or willfully disclose our proprietary information to competitors. Enforcement of claims that a third party has illegally obtained and is using trade secrets is an expensive, time-consuming and uncertain process. In addition, foreign courts are sometimes less willing than U.S. courts to protect trade secrets. If our competitors independently develop equivalent knowledge, methods and know-how, we would not be able to assert our trade secrets against them. Our failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

We have taken measures to protect our trade secrets and proprietary information, but these measures may not be effective. We require new employees and consultants to execute confidentiality agreements upon the commencement of an employment or consulting arrangement with us. These agreements generally require that all confidential information developed by the individual or made known to the individual by us during the course of the individual's relationship with us be kept confidential and not disclosed to third parties. Nevertheless, our proprietary information may be disclosed, third parties could reverse engineer our systems, and others may independently develop substantially equivalent proprietary information and techniques or otherwise gain access to our trade secrets. Costly and time-consuming litigation could be necessary to enforce and determine the scope of our proprietary rights, and failure to obtain or maintain trade secret protection could adversely affect our competitive business position.

If trade secrets are stolen, misappropriated or reverse engineered, others could use these designs to produce competing products.

A number of third parties, including various industry partners, plant operators, university scientists and researchers, and those involved in the shipping and handling of products produced using our technology platform, have or may have access in the future to our proprietary technology. If the proprietary technology covered by our trade secrets were stolen, misappropriated or reverse engineered based on unauthorized use or based on extrapolation from our disclosures in our patent applications, it could be used by other parties for their own commercial gain. If this were to occur, it could be difficult, time consuming and costly for us to discover or challenge this type of use, especially in countries with limited intellectual property protection.

If we are unable to prevent third parties from adopting, registering or using trademarks or otherwise violating our trademark rights, our business could be materially adversely affected.

We currently hold issued trademark registrations and have trademark applications pending, any of which may be the subject of a governmental or third-party objection, which could prevent the issuance or maintenance of the same and thus create the potential need to rebrand or relabel one or more of our services. As our business matures, our reliance on our trademarks to differentiate us from our competitors increases and as a result, if we are unable to prevent third parties from adopting, registering or using trademarks, trade dress, or other source indicators that infringe, dilute or otherwise violate our trademark rights, our business could be materially adversely affected.

We may not retain exclusive rights to intellectual property created as a result of our strategic partnering arrangements which could limit our prospects and result in costly and time-consuming disputes.

We are a party to joint development agreements with a number of parties and are seeking to enter into agreements with others, each of which involve research and development efforts. We expect to enter into additional strategic partnering arrangements in the future. Under our existing agreements, we share, and would share, to various degrees, intellectual property we jointly develop. Any disputes as to ownership with a partner that may arise could encumber or prevent our use of the disputed technology, could harm our relationship with the relevant partner and would likely negatively affect our commercialization plans with respect to that technology. Additionally, litigation may be necessary to resolve disputes as to the ownership of intellectual property rights as between us and our industry partners, which can be costly, distracting to management and can harm our reputation and the value of our company. Further, we may not be successful in defending our intellectual property rights in any such litigation, and if we are unsuccessful, the value of our company could be seriously harmed.

Some of our intellectual property may be subject to federal regulation such as "march-in" rights, reporting requirements and a preference for U.S. industry, and any such regulations could negatively impact our business and prospects.

Some of the intellectual property that protects our technology platform has been funded by grants from U.S. government agencies and is subject to certain federal regulations. For example, under the "march-in" provisions of the Bayh-Dole Act, the government may have the right under limited circumstances to require us to grant exclusive, partially exclusive or non-exclusive rights to third parties under any intellectual property discovered through the government-funded programs. March-in rights can be triggered if the government determines that we have failed to work sufficiently towards achieving practical application of a technology or if action is necessary to alleviate health or safety needs, to meet requirements for public use specified by federal regulations or to give preference to U.S. industry. Specifically, certain of our granted and pending patents that cover recombinant and other microorganisms, cell-free protein synthesis platforms, protein expression vectors, fermentative production pathways, and microbial and ethanol conversion pathways may be subject to march-in-rights. These patents account for less than one percent of our granted and pending patents. We are also subject to certain reporting requirements as well as a preference for U.S. industry relating to manufacturing of products under the Bayh-Dole Act. Any such regulations could negatively impact our business and prospects.

We depend on certain technologies that are licensed to us. We do not control these technologies and any loss of our rights to them could prevent us from developing or selling our process technologies.

We rely on licenses in order to be able to use various proprietary technologies that are material to our business, including a license with the Battelle Memorial Institute (“Battelle”). We do not own the patents that underlie these licenses. Our rights to use the technology we license are subject to the continuation of and compliance with the terms of those licenses. We do not always control the prosecution, maintenance or filing of the patents to which we hold licenses. Thus, some of these patents and patent applications were not written by us or our attorneys, and we did not have control over their drafting and prosecution. Our licensors might not have given the same attention to the drafting and prosecution of these patents and applications as we would have if we had been the owners of the patents and applications and had control over the drafting and prosecution. We cannot be certain that drafting or prosecution of the licensed patents and patent applications by the licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights.

Our rights to use the technology we license are subject to the validity of the owners’ intellectual property rights. Enforcement of our licensed patents or defense or any claims asserting the invalidity of these patents is often subject to the control or cooperation of our licensors and/or interpretation of the license agreements. We cannot be certain that we will have control of the enforcement of these patents against third parties. Legal action could be initiated against the owners of the intellectual property that we license. Even if we are not a party to these legal actions, an adverse outcome could harm our business because it might prevent our licensors from continuing to license the intellectual property that we may need to operate our business.

Certain of our licenses contain provisions that allow the licensor to terminate the license upon specific conditions, including breach or insolvency. Our rights under the licenses are subject to our continued compliance with the terms of the license, including the payment of royalties due under the license. Termination of these licenses could prevent us from developing or marketing some or all of our process technologies. Because of the complexity of our technologies underlying our process technologies and the patents we have licensed, determining the scope of the license and related royalty obligation can be difficult and can lead to disputes between us and the licensor. An unfavorable resolution of such a dispute could lead to an increase in the royalties payable pursuant to the license. If a licensor believed we were not paying the royalties due under the license or were otherwise not in compliance with the terms of the license, the licensor might attempt to revoke the license. If such an attempt were successful, we might be barred from developing and selling some or all of our process technologies.

Any strategic partnering arrangement that involves the licensing of any of our intellectual property may increase our risks, harm our competitive position and increase our costs.

In addition to partnering with industry leaders through our co-development model, we may enter into licensing arrangements aimed to accelerate commercialization of our production process pipeline. Licensing any of our intellectual property increases the number of people who have access to some of our proprietary information. The scope of any such license may not be sufficiently narrow to adequately protect our interests. Moreover, contractual obligations of our licensees not to disclose or misuse our intellectual property may not be sufficient to prevent such disclosure or misuse. The costs of enforcing contractual rights could substantially increase our operating costs and may not be cost-effective, reasonable under the circumstances or ultimately succeed in protecting our proprietary rights. If our competitors access our intellectual property, they may gain further insight into the technology and design of our process technologies, which would harm our competitive position.

We may be involved in lawsuits to protect or enforce our patents or the patents of our licensors, or lawsuits asserted by a third party, which could be expensive, time consuming and unsuccessful.

Competitors may infringe our patents or the patents of our licensors. To counter infringement or unauthorized use, we may need to file infringement claims, which can be expensive and time-consuming. In addition, in an infringement proceeding, a court may decide that a patent of ours or our licensors is not valid or is unenforceable, or may refuse to stop the other party from using the technology at issue on the grounds that our patents do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of our patents at risk of being invalidated or interpreted narrowly and could put our patent applications at risk of not issuing.

Interference proceedings provoked by third parties or brought by the U.S. Patent and Trademark Office may be necessary to determine the priority of inventions with respect to our patents or patent applications or those of our collaborators or licensors. An unfavorable outcome could require us to cease using the related technology or to attempt to license rights to it from the prevailing party. Our business could be harmed if the prevailing party does not offer us a license on commercially

reasonable terms. Litigation or interference proceedings may fail and, even if successful, may result in substantial costs and distract our management and other employees. We may not be able to prevent, alone or with our licensors, misappropriation of our proprietary rights, particularly in countries where the laws may not protect those rights as fully as in the United States.

Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments.

Because of the uncertainties involved in the issuance and enforcement of patents, and the value of a patent, patent disputes and litigations are common. We may become involved in patent disputes relating to infringement of our technology, with third-parties asserting their patents, with our licensors or licensees, with industry partners and with employees, among others. Patent disputes can take years to resolve, can be very costly and can result in loss of rights, injunctions and substantial penalties. Moreover, patent disputes and related proceedings can distract management's attention and interfere with running the business.

Risks Related to Ownership of Our Securities

The price of our securities may be volatile.

Following the Business Combination, fluctuations in the price of our securities could contribute to the loss of all or part of your investment. The trading price of our securities may be volatile and subject to wide fluctuations in response to various factors, some of which are beyond our control. Any of the factors listed below could have a material adverse effect on your investment in our securities and our securities may trade at prices significantly below the price you paid for them. In such circumstances, the trading price of our securities may not recover and may experience a further decline. Factors affecting the trading price of our's securities may include:

- actual or anticipated fluctuations in our quarterly financial results or the quarterly financial results of companies perceived to be similar to us;
- changes in the market's expectations about our's operating results;
- the development of new plants;
- success of competitors;
- operating results failing to meet the expectations of securities analysts or investors in a particular period;
- entering into new agreements with partners;
- changes in financial estimates and recommendations by securities analysts concerning LanzaTech or the industry in which we operates in general;
- operating and stock price performance of other companies that investors deem comparable to LanzaTech;
- ability to market new and enhanced products and services on a timely basis;
- media and consumer sentiment towards our mission and business operations
- changes in laws and regulations affecting our business;
- commencement of, or involvement in, litigation involving LanzaTech;
- changes in LanzaTech's capital structure, such as future issuances of securities or the incurrence of additional debt;
- the volume of shares of common stock available for public sale;
- any major change in our board or management;
- sales of substantial amounts of common stock by our or New LanzaTech's directors, executive officers or significant stockholders or the perception that such sales could occur; and
- general economic and political conditions such as recessions, interest rates, fuel prices, international currency fluctuations and acts of war or terrorism.

Broad market and industry factors may materially harm the market price of our securities irrespective of our operating performance. The stock market in general, and Nasdaq specifically, have experienced extreme volatility that has often been unrelated to the operating performance of particular companies. As a result of this volatility, you may not be able to sell your securities at or above the price at which it was acquired. A loss of investor confidence in the market for the stocks of other companies which investors perceive to be similar to LanzaTech could depress our stock price regardless of our business, prospects, financial conditions or results of operations. A decline in the market price of our securities also could adversely affect our ability to issue additional securities and our ability to obtain additional financing in the future.

A substantial portion of our total outstanding shares may be sold into the market at any time. This could cause the market price of our common stock to drop significantly, even if our business is doing well.

The market price of our common stock could decline as a result of sales of a large number of shares of our common stock or the perception that such sales could occur. 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 price that we deem appropriate.

Reports published by analysts, including projections in those reports that differ from our actual results, could adversely affect the price and trading volume of the common stock.

Securities research analysts establish and publish their own periodic projections for the business of LanzaTech. These projections may vary widely and may not accurately predict the results we actually achieve. Our stock price may decline if our actual results do not match the projections of these securities research analysts. Similarly, if one or more of the analysts who write reports on LanzaTech downgrades our stock or publishes inaccurate or unfavorable research about our business, our stock price could decline. If one or more of these analysts ceases coverage of LanzaTech or fails to publish reports on LanzaTech regularly, our stock price or trading volume could decline.

We may issue additional shares of common stock or other equity securities without your approval, which would dilute your ownership interests and may depress the market price of the common stock.

As of December 31, 2023, we had warrants (including the AM Warrant and the Shortfall Warrants) outstanding to purchase up to an aggregate of 16,657,686 shares of common stock, options (including the Options) outstanding to purchase up to an aggregate of 16,411,978 shares of common stock, and 7,084,967 unvested RSUs outstanding. Under the LanzaTech 2023 Long-Term Incentive Plan (the “2023 Plan”), we also have the ability to issue 12,006,935 shares of our common stock, and the Brookfield SAFE may convert into up to 5,000,000 shares of our common stock. The 2023 Plan is required to provide for the ability to grant and recycle the common stock (including any shares subject to forfeited options or restricted stock awards), and to initially reserve a number of shares of the common stock constituting 10% of the total number of shares of the common stock outstanding on a fully diluted basis, as determined at the closing of the Business Combination, and include an “evergreen” provision pursuant to which the number of shares reserved for issuance under the 2023 Plan will be increased automatically each year by 3% of the aggregate number of shares of the common stock then outstanding on a fully diluted basis. We may also issue additional shares of common stock or other equity securities of equal or senior rank in the future in connection with, among other things, future acquisitions or repayment of outstanding indebtedness, without stockholder approval, in a number of circumstances.

Our issuance of additional shares of common stock or other equity securities of equal or senior rank would have the following effects:

- our existing stockholders’ proportionate ownership interest in LanzaTech will decrease;
- the amount of cash available per share, including for payment of dividends in the future, may decrease;
- the relative voting strength of each previously outstanding share of common stock may be diminished; and
- the market price of shares of the common stock may decline.

Because we do not anticipate paying any cash dividends on the common stock in the foreseeable future, capital appreciation, if any, will be your sole source of gains and you may never receive a return on your investment.

We may retain future earnings, if any, for future operations, expansion and debt repayment and have no current plans to pay any cash dividends for the foreseeable future. Any decision to declare and pay dividends as a public company in the future will be made at the discretion of the Board and will depend on, among other things, our results of operations, financial condition, cash requirements, contractual restrictions and other factors that the Board may deem relevant. In addition, our ability to pay dividends may be limited by covenants of any existing and future outstanding indebtedness we or our subsidiaries incur. As a result, you may not receive any return on an investment in our securities unless you sell your securities for a price greater than that which you paid for it.

The Public Warrants are identical to the Private Placement Warrants in material terms and provisions, except in certain circumstances, and are materially different from the LanzaTech warrants.

The Public Warrants are identical to the Private Placement Warrants in material terms and provisions, except that the Private Placement Warrants are not transferable, assignable or salable until 30 days after the closing of the Business Combination (except in limited circumstances) and are not redeemable by us so long as they are held by the Sponsor or its permitted transferees. If the Private Placement Warrants are held by holders other than the Sponsor or its permitted transferees, they will be redeemable by us and exercisable by the holders on the same basis as the Public Warrants. The Sponsor agreed not to transfer, assign or sell any of the Private Placement Warrants until 30 days after the closing of the business combination.

We may redeem the Public Warrants prior to their exercise at a time that is disadvantageous to holders of Public Warrants. We have the ability to redeem outstanding Public Warrants at any time after they become exercisable and prior to their expiration, at a price of \$0.01 per Public Warrant, provided that the closing price of the common stock equals or exceeds \$18.00 per share (as adjusted for adjustments to the number of shares issuable upon exercise or the exercise price of a warrant) for any 20 trading days within a 30 trading day period commencing once the Public Warrants become exercisable and ending three days before we send the notice of redemption to Public Warrant holders. If and when the Public Warrants become redeemable by us, we may exercise the redemption right even if we are unable to register or qualify the underlying securities for sale under all applicable state securities laws. As a result, we may redeem the warrants as set forth above even if the holders are otherwise unable to exercise the warrants. Redemption of the outstanding Public Warrants could force holders of the Public Warrants (i) to exercise their Public Warrants and pay the exercise price therefor at a time when it may be disadvantageous for them to do so, (ii) to sell their Public Warrants at the then-current market price when they might otherwise wish to hold their Public Warrants or (iii) to accept the nominal redemption price which, at the time the outstanding Public Warrants are called for redemption, is likely to be substantially less than the market value of their Public Warrants. As noted above, none of the Private Placement Warrants will be redeemable by us so long as they are held by the Sponsor or its permitted transferees.

The terms of the Legacy LanzaTech warrants that were converted into New LanzaTech warrants at the closing of the Business Combination are materially different from those of the Public Warrants. The AM Warrant entitles its holder to purchase up to 300,000 shares of common stock at an exercise price equal to \$10.00, and will expire on the fifth anniversary of the consummation of the Business Combination. The Shortfall Warrants entitle the holders to purchase up to 4,083,486 shares of common stock at an exercise price equal to \$10.00 per share, subject to adjustment, and will expire on March 27, 2028.

You may only be able to exercise your Public Warrants on a “cashless basis” under certain circumstances, and if you do so, you will receive fewer shares of the common stock from such exercise than if you were to exercise such warrants for cash.

The Warrant Agreement provides that in the following circumstances holders of warrants who seek to exercise their Public Warrants will not be permitted to do so for cash and will, instead, be required to do so on a cashless basis in accordance with Section 3(a)(9) of the Securities Act: (i) if the shares of common stock issuable upon exercise of the warrants are not registered under the Securities Act in accordance with the terms of the Warrant Agreement or if the registration statement under which the warrants are registered is suspended; (ii) if we have so elected and the shares of common stock is at the time of any exercise of a warrant not listed on a national securities exchange such that they satisfy the definition of “covered securities” under Section 18(b)(1) of the Securities Act; and (iii) if we have so elected and we call the Public Warrants for redemption. If you exercise your Public Warrants on a cashless basis, you would pay the warrant exercise price by surrendering the warrants for that number of shares of common stock equal to the quotient obtained by dividing (x) the product of the number of shares of common stock underlying the warrants, multiplied by the excess of the “fair market value” of our shares of common stock (as defined in the next sentence) over the exercise price of the warrants by (y) the fair market value. The “fair market value” is the average closing price of the shares of the common stock for the 10 trading days ending on the third trading day prior to the date on which the notice of exercise is received by the warrant agent or on which the notice of redemption is sent to the holders of warrants, as applicable. As a result, you would receive fewer shares of the common stock from such exercise than if you were to exercise such warrants for cash.

Our warrant agreement designates the courts of the State of New York or the United States District Court for the Southern District of New York as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by holders of our warrants, which could limit the ability of warrant holders to obtain a favorable judicial forum for disputes with our company.

Our warrant agreement provides that, subject to applicable law, (i) any action, proceeding or claim against us arising out of or relating in any way to the Warrant Agreement, including under the Securities Act, will be brought and enforced in the courts of the State of New York or the United States District Court for the Southern District of New York, and (ii) that we irrevocably submit to such jurisdiction, which jurisdiction will be the exclusive forum for any such action, proceeding or claim. We will waive any objection to such exclusive jurisdiction and that such courts represent an inconvenient forum.

Notwithstanding the foregoing, these provisions of the Warrant Agreement will not apply to suits brought to enforce any liability or duty created by the Exchange Act or any other claim for which the federal district courts of the United States of America are the sole and exclusive forum. Any person or entity purchasing or otherwise acquiring any interest in any of our warrants will be deemed to have notice of and to have consented to the forum provisions in our Warrant Agreement. If any action, the subject matter of which is within the scope the forum provisions of the Warrant Agreement, is filed in a court other than a court of the State of New York or the United States District Court for the Southern District of New York (a “foreign action”) in the name of any holder of our warrants, such holder will be deemed to have consented to: (x) the personal jurisdiction of the state and federal courts located in the State of New York in connection with any action brought in any such court to enforce the forum provisions (an “enforcement action”), and (y) having service of process made upon such warrant holder in any such enforcement action by service upon such warrant holder’s counsel in the foreign action as agent for such warrant holder.

This choice-of-forum provision may limit a warrant holder’s ability to bring a claim in a judicial forum that it finds favorable for disputes with our company, which may discourage such lawsuits against us and our directors, officers, or other employees and may result in increased litigation costs for our stockholders. Alternatively, if a court were to find this provision of the Warrant Agreement inapplicable or unenforceable with respect to one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could materially and adversely affect our business, financial condition and results of operations and result in a diversion of the time and resources of our management and board of directors.

We may amend the terms of the Public Warrants in a manner that may be adverse to holders with the approval by the holders of at least 50% of the then-outstanding Public Warrants. As a result, the exercise price of a holder’s Public Warrants could be increased, the exercise period could be shortened and the number of shares of the common stock purchasable upon exercise of a Public Warrant could be decreased, all without the approval of that warrant holder.

Our Public Warrants were issued in registered form under the Warrant Agreement between Continental Stock Transfer & Trust Company, as warrant agent, and us. The Warrant Agreement provides that the terms of the Public Warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision, but requires the approval by the holders of at least 50% of the then-outstanding Public Warrants to make any change that adversely affects the interests of the registered holders. Accordingly, we may amend the terms of the Public Warrants in a manner adverse to a holder if holders of at least 50% of the then-outstanding Public Warrants approve of such amendment. Although our ability to amend the terms of the Public Warrants with the consent of at least 50% of the then-outstanding Public Warrants is unlimited, examples of such amendments could be amendments to, among other things, increase the exercise price of the Public Warrants, convert the Public Warrants into cash or stock, shorten the exercise period or decrease the number of shares of common stock purchasable upon exercise of a Public Warrant.

We and Legacy LanzaTech have identified material weaknesses in our internal control over financial reporting. While some of these material weaknesses have been remediated, they could continue to adversely affect our ability to report our results of operations and financial condition accurately and in a timely manner.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with US GAAP. Our management is likewise required, on a quarterly basis, to evaluate the effectiveness of our internal controls and to disclose any changes and material weaknesses identified through such evaluation of those internal controls. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of our annual or interim financial statements will not be prevented or detected on a timely basis.

During 2023, we restated our condensed consolidated financial statements as of and for the quarters ended March 31, 2023 and June 30, 2023. In connection with this restatement, we concluded that the failure of our internal controls designed to ensure appropriate accounting for complex technical arrangements like the forward purchase agreement is representative of a material weakness in our internal control over financial reporting. Our management also concluded that our internal control over financial reporting as of December 31, 2023 was not effective due to material weaknesses related to controls over the accounting for complex transactions and estimates requiring significant judgment as well as controls over revenue recognition. Additionally, our management concluded that, as a result of the material weaknesses in our internal control over financial reporting, our disclosure controls and procedures were ineffective as of December 31, 2023.

Legacy LanzaTech has also identified material weaknesses in its internal control over financial reporting. During 2022, Legacy LanzaTech restated its previously issued 2020 and 2021 financial statements. The restatement resulted from certain material weaknesses. For additional information on the restatement, see Note 2 — *Summary of Significant Accounting Policies* to Legacy LanzaTech's 2020 and 2021 restated financial statements. LanzaTech has not sufficiently designed, documented and implemented formal accounting policies, processes, and controls at the entity level or over the process of the accounting for complex transactions under U.S. GAAP.

It is possible that we may identify other material weaknesses in the future. Our management has expended, and will continue to expend, a substantial amount of effort and resources for the improvement of our internal control over financial reporting. While we have processes to properly identify and evaluate the appropriate accounting technical pronouncements and other literature for all significant or unusual transactions, we have expanded and will continue to improve these processes to ensure that the nuances of such transactions are effectively evaluated.

We can give no assurance that any measures we take, will remediate the deficiencies in internal control or that additional material weaknesses or significant deficiencies in internal control over financial reporting will not be identified in the future. Failure to implement and maintain effective internal control over financial reporting could result in material misstatements of our consolidated financial statements that may require us in the future to restate our financial statements or cause us to fail to meet our periodic reporting obligations. As a result, we could be subject to sanctions or investigations by Nasdaq, the SEC or other regulatory authorities. Failure to timely file will cause us to be ineligible to utilize short form registration statements on Form S-3 or Form S-4, which may impair our ability to obtain capital in a timely fashion to execute our business strategies or issue shares to effect an acquisition. In either case, there could result a material adverse effect on our business. The existence of material weaknesses or significant deficiencies in internal control over financial reporting could adversely affect our reputation or investor perceptions of LanzaTech, which could have a negative effect on the trading price of the common stock. In addition, we would incur additional costs to remediate material weaknesses in our internal control over financial reporting.

We are required, pursuant to Section 404 of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting for future annual reports on Form 10-K to be filed with the SEC, and our independent registered public accounting firm will be required to attest to the effectiveness of our internal control over financial reporting pursuant to Section 404 of the Sarbanes-Oxley Act. Failure to comply with the Sarbanes-Oxley Act could potentially subject us to sanctions or investigations by the SEC, Nasdaq or other regulatory authorities, which would require additional financial and management resources.

We may face litigation and other risks as a result of the material weaknesses in our internal control over financial reporting.

As described elsewhere herein, we have identified a material weakness in our internal control over financial reporting. As a result of such material weaknesses, the restatement, the change in accounting for the financial instruments, and other matters raised or that may in the future be raised by the SEC, we face potential for litigation or other disputes which may include, among others, claims invoking the federal and state securities laws, contractual claims or other claims arising from the restatement and material weaknesses in our internal control over financial reporting and the preparation of our financial statements. As of the date hereof, we have no knowledge of any such litigation or dispute. However, we can provide no assurance that such litigation or dispute will not arise in the future. Any such litigation or dispute, whether successful or not, could have a material adverse effect on our business, results of operations and financial condition or our ability to complete a business combination.

Delaware law and provisions in our certificate of incorporation and bylaws could make a takeover proposal more difficult.

Our organizational documents are governed by Delaware law. Certain provisions of Delaware law and of our certificate of incorporation and bylaws could discourage, delay, defer or prevent a merger, tender offer, proxy contest or other change of control transaction that a stockholder might consider in its best interest, including those attempts that might result in a

premium over the market price for the shares of the common stock held by our stockholders. These provisions include the ability of the Board to designate the terms of and issue new series of preference shares, supermajority voting requirements to amend certain provisions of our certificate of incorporation, the classification of the Board, and a prohibition on stockholder actions by written consent, which may make more difficult the removal of management and may discourage transactions that otherwise could involve payment of a premium over prevailing market prices for our securities.

These anti-takeover provisions as well as certain other provisions of Delaware law could make it more difficult for a third party to acquire us, even if the third party's offer may be considered beneficial by many of our stockholders. As a result, our stockholders may be limited in their ability to obtain a premium for their shares. If prospective takeovers are not consummated for any reason, we may experience negative reactions from the financial markets, including negative impacts on the price of the common stock. These provisions could also discourage proxy contests and make it more difficult for stockholders to elect directors of their choosing and to cause us to take other corporate actions that our stockholders desire.

Our certificate of incorporation designates the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings and the federal district courts as the sole and exclusive forum for other types of actions and proceedings, in each case, that may be initiated by our stockholders, which could limit our stockholders' ability to obtain what such stockholders believe to be a favorable judicial forum for disputes with the company or our directors, officers or other employees or increase our stockholders' costs in bringing such a claim.

Our certificate of incorporation provides that, unless we consents to the selection of an alternative forum, the Court of Chancery of the State of Delaware will be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of LanzaTech; (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer or employee of LanzaTech to LanzaTech or its stockholders; (iii) any action asserting a claim against LanzaTech or any director, officer or employee arising pursuant to any provision of the DGCL or our certificate of incorporation or bylaws; or (iv) any action asserting a claim against LanzaTech or any director, officer or employee of LanzaTech governed by the internal affairs doctrine, and, if brought outside of Delaware, the stockholder bringing the suit will be deemed to have consented to (A) the personal jurisdiction of the state and federal courts within Delaware and (B) service of process on such stockholder's counsel. The provision described in the immediately preceding sentence will not apply to (i) suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the federal courts have exclusive jurisdiction and (ii) any complaint asserting a cause of action arising under the Securities Act of 1933, as amended, or the rules and regulations promulgated thereunder, for which the federal courts will be the exclusive forum. Any person or entity purchasing or otherwise acquiring an interest in any shares of our capital stock will be deemed to have notice of and to have consented to the forum provisions in our certificate of incorporation. These choice-of-forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that he, she or it believes to be favorable for disputes with us or our directors, officers or other employees, which may discourage such lawsuits against us and our directors, officers, or other employees and may result in increased litigation costs for our stockholders. We note that there is uncertainty as to whether a court would enforce these provisions and that investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. Section 22 of the Securities Act creates concurrent jurisdiction for state and federal courts over all suits brought to enforce any duty or liability created by the Securities Act or the rules and regulations thereunder.

Alternatively, if a court were to find these provisions of our certificate of incorporation inapplicable or unenforceable with respect to one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could materially adversely affect our business, financial condition and results of operations and result in a diversion of the time and resources of our management and the Board.

We may not have the funds necessary to satisfy our future obligations under the Forward Purchase Agreement.

Pursuant to the Forward Purchase Agreement, on the Maturity Date the Company is obligated to pay to the Seller the Maturity Consideration, which may be paid in cash or in shares, the Share Consideration and the Prepayment Amount. However, at the time, the Company may not have sufficient funds or be able to obtain financing from third parties to pay such amounts. The Company also may not have sufficient shares authorized to pay the Maturity Consideration in shares. Breach by the Company of any of these obligations could constitute an event of default under the Forward Purchase Agreement, which could subject the Company to financial exposure thereunder (including arising from potential indemnification claims by the Seller). In addition, future debt or other contractual agreements may contain cross-default or cross-acceleration provisions that could be triggered if we defaulted on our obligations to the Seller. Any or all of these consequences could have material adverse consequences for us.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Risk Management and Strategy

We have implemented a cybersecurity program for assessing, identifying, and managing cybersecurity risks aligned with the National Institute of Standard and Technology Cybersecurity Framework (NIST CSF) and where appropriate we have integrated these processes into our enterprise risk management framework. We have implemented administrative, technical, and physical safeguards designed to protect our information systems and protect the confidentiality, integrity, and availability of our data. We are continuously working to improve our information technology systems and provide employee awareness training around phishing, malware, and other cyber risks to enhance our levels of protection.

We engage external parties, such as consultants, to enhance our cybersecurity oversight as required. We conduct periodic risk assessments to evaluate our cybersecurity posture, including through annual third-party penetration tests performed by reputable service providers. We conduct risk assessments, as appropriate, on critical third parties who maintain material data or information to help assess and validate the information security capabilities of these third parties. We maintain insurance coverage for cybersecurity insurance as part of our overall insurance portfolio. We also have implemented administrative, technical, and physical safeguards designed to protect our information systems and protect the confidentiality, integrity, and availability of our data.

Governance Related to Cyber Security Risks

The Audit Committee of the Board of Directors has oversight of management's efforts with respect to IT systems and cybersecurity. As part of this oversight, our Chief Information Security Officer ("CISO") shares quarterly updates regarding any changes around our cybersecurity defenses, ongoing IT initiatives, and emerging threats and plans to pro-actively address these threats with the Audit Committee. During these meetings, the CISO provides the Audit Committee updates regarding any changes around our cyber defenses, ongoing IT initiatives, and emerging threats and plans to pro-actively address these threats. Our Board of Directors has delegated primary responsibility for the oversight of cybersecurity matters to the Audit Committee; however, the full board reviews significant cybersecurity matters as appropriate. The Audit Committee provides updates to the Board of Directors on a quarterly basis on the activities that the Audit Committee oversees, including Cybersecurity.

Our Chief Information Security Officer is responsible for strengthening and continuously monitoring the effectiveness of our cybersecurity program. The individual currently serving in the role of Chief Information Security Officer has over 30 years of information systems and cybersecurity experience within complex and international business verticals such as technology, financial services, biotech, and other scientific organizations. He also holds the Certified Information Systems Security Professional (CISSP) certification. In addition, our cybersecurity steering committee assists in managing certain technical aspects related to cybersecurity. Our cybersecurity steering committee is informed about and monitor the prevention, detection, mitigation, and remediation of cybersecurity incidents through monthly meetings and frequent communications. Regular members of the steering committee consists of participants from the IT infrastructure, Business Systems, AI and Modelling and Scientific Computing teams. Participants from other teams attends on a as-needed basis.

To date, we have not identified any indication of a cybersecurity incident that would have a material impact on our business and consolidated financial statements.

Item 2. Properties

LanzaTech's global headquarters and R&D center are co-located at the Illinois Science + Technology Park research campus in Skokie, Illinois. The facility houses LanzaTech's state-of-the-art laboratories dedicated to synthetic biology, product synthesis, and analytics. In addition to its R&D center, the LanzaTech Freedom Pines Biorefinery located in Soperton, Georgia is used for scaling up and production. The site includes multiple gas fermentation systems of greater than 100L, emulating commercial designs and supporting laboratory facilities and is also the site of LanzaTech's scale up of the alcohol-to-jet process.

Item 3. Legal Proceedings

The Company may be involved in legal proceedings and exposed to potential claims in the normal course of business. Although we cannot predict the ultimate outcome of any legal matter with certainty, we do not believe the outcome of any of our pending legal proceedings will have a material adverse impact on our consolidated financial position, results of operations or cash flows.

Item 4. Mine Safety Disclosures

None.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our common stock and warrants to purchase our common stock are listed on the Nasdaq Capital Market under the symbols LNZA and LNZAW, respectively.

Holder

As of December 31, 2023, there were 105 holders of record of our common stock and 2 holders of record of our warrants to purchase our common stock. Such numbers do not include beneficial owners holding our securities through nominee names.

Dividends

We have never declared or paid any dividends on shares of common stock. We anticipate that we will retain all of our future earnings, if any, for use in the operation and expansion of our business and do not anticipate paying cash dividends in the foreseeable future. Any decision to declare and pay dividends in the future will be made at the sole discretion of our Board will depend on, among other things, our results of operations, cash requirements, financial condition, contractual restrictions and other factors that our board of directors may deem relevant.

Securities Authorized for Issuance Under Equity Compensation Plans

The information required by Item 5 of Form 10-K regarding equity compensation plans is incorporated herein by reference to Part III, Item 12 of this Annual Report.

Issuer Purchases of Equity Securities

Not applicable.

Recent Sales of Unregistered Securities

Except as previously reported by the Company on its Current Reports on Form 8-K, we did not sell any securities during the period covered by this Form 10-K that were not registered under the Securities Act.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with our consolidated financial statements and the related notes included in Part II, Item 8 of this Annual Report, and our audited consolidated financial statements. This discussion and analysis may contain forward-looking statements based upon current beliefs, plans and expectations that involve risks, uncertainties, and assumptions, including, but not limited to, risks and uncertainties discussed under the heading 'Cautionary Note on Forward-Looking Statements,' and in Part I, Item 1A "Risk Factors" included in this Annual Report. In this section, unless otherwise indicated or the context otherwise requires, references in this section to "LanzaTech," the "Company," "we," "us," "our" and other similar terms refer to LanzaTech Global, Inc. and its consolidated subsidiaries, including LanzaTech NZ, Inc. and its consolidated subsidiaries subsequent to the Business Combination and LanzaTech NZ, Inc. and its consolidated subsidiaries prior to the Business Combination. References to "AMCI" refer to AMCI Acquisition Corp. II prior to the Business Combination. We have elected to omit discussion on the earliest of the three years covered by the consolidated financial statements presented. Refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations of LanzaTech NZ, Inc. for the year ended December 31, 2022," included as Exhibit 99.6 to our Current Report on Form 8-K/A, filed with the SEC on March 28, 2023, for reference to discussion of the fiscal year ended December 31, 2021, the earliest of the three fiscal years presented. We have elected to omit discussion on the earliest of the three years covered by the consolidated financial statements presented. Refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations of LanzaTech NZ, Inc. for the year ended December 31, 2022," included as Exhibit 99.6 to our Current Report on Form 8-K/A, filed with the SEC on March 28, 2023, for reference to discussion of the fiscal year ended December 31, 2021, the earliest of the three fiscal years presented. We have elected to omit discussion on the earliest of the three years covered by the consolidated financial

statements presented. Refer to “Management’s Discussion and Analysis of Financial Condition and Results of Operations of LanzaTech NZ, Inc. for the year ended December 31, 2022,” included as Exhibit 99.6 to our Current Report on Form 8-K/A, filed with the SEC on March 28, 2023, for reference to discussion of the fiscal year ended December 31, 2021, the earliest of the three fiscal years presented.

Overview

We are a nature-based carbon refining company that develops technology to transform waste carbon into the chemical building blocks for consumer goods such as sustainable fuels, fabrics, and packaging that people use in their daily lives. Our customers leverage our proven proprietary gas fermentation technology platform to convert certain feedstock, including waste carbon gases, into sustainable fuels and chemicals such as ethanol. Today, we are focused on taking advantage of the many uses of ethanol while capitalizing on the growing preference among major companies for renewable products and environmentally-conscious manufacturing processes. We have also been developing the capabilities to produce single cell protein as a primary product from our gas fermentation platform.

LanzaTech performs research and development (“R&D”) services related to novel technologies and development of biocatalysts for commercial applications, mainly to produce fuels and chemicals. We primarily employ a licensing business model whereby our customers build, own and operate facilities that use our technology, and in return, we are paid a royalty fee based on the revenue generated from the use of our technology. We began operations in 2005. In 2018, through our joint venture with Shougang LanzaTech (also referred as “SGLT” herein), we established the world’s first commercial waste gas-to-ethanol plant in China, followed by five more plants between 2021 and 2023 - three in China, one in India, and one in Belgium with others currently in development in various countries around the world.

We have not achieved operating profitability since our formation. Our net losses after tax were \$(134.1) million for the year ended December 31, 2023 and \$(76.4) million for the year ended December 31, 2022. As of December 31, 2023 we had an accumulated deficit of \$(831.9) million compared to an accumulated deficit of \$(456.2) million as of December 31, 2022. We anticipate that we will continue to incur losses until we sufficiently commercialize our technology.

Near-term, we expect engineering services and sales of equipment packages on several projects to drive higher revenues.

The Business Combination

On March 8, 2022, AMCI entered into the Merger Agreement with LanzaTech NZ, Inc. and AMCI Merger Sub, Inc. (“Merger Sub”). On February 8, 2023, Merger Sub merged with and into LanzaTech NZ, Inc. Upon consummation of the Business Combination, the separate corporate existence of Merger Sub ceased, and LanzaTech NZ, Inc. survived the Business Combination and became a wholly owned subsidiary of AMCI. In connection with the consummation of the Business Combination, the combined company was renamed “LanzaTech Global, Inc.”

Accounting Impact of the Business Combination

The Business Combination was accounted for as a reverse recapitalization. LanzaTech NZ, Inc. was deemed the accounting predecessor and the Company is the successor SEC registrant.

Under this method of accounting, AMCI was treated as the acquired company for financial statement reporting purposes. For accounting purposes, LanzaTech NZ, Inc. was deemed to be the accounting acquirer in the transaction and, consequently, the transaction was treated as a recapitalization of LanzaTech NZ, Inc. (i.e., a capital transaction involving the issuance of stock by AMCI for the stock of LanzaTech NZ, Inc.). Accordingly, the consolidated balance sheets and results of operations of LanzaTech NZ, Inc. became the historical financial statements of the Company, and AMCI’s assets, liabilities and results of operations were consolidated with LanzaTech NZ Inc.’s beginning on the acquisition date. The net assets of AMCI were recognized at carrying value, with no goodwill or other intangible assets recorded.

Basis of Presentation

LanzaTech’s consolidated financial statements were prepared in accordance with US GAAP. See *Note 2 - Summary of Significant Accounting Policies* to our consolidated financial statements for a full description of our basis of presentation.

Key Financial Metrics:

The key elements of LanzaTech's performance for the years ended December 31, 2023 and December 31, 2022 are summarized in the tables below:

(In thousands, except for percentages)	Year Ended December 31,		Change	
	2023	2022	2023 vs. 2022	
GAAP Measures:				
Revenue	\$ 62,631	\$ 37,343	\$ 25,288	68 %
Net Loss	(134,098)	\$ (76,356)	(57,742)	76 %
Key Performance Indicators:				
One-Time Revenue	57,754	33,764	23,990	71 %
Recurring Revenue ⁽¹⁾	4,877	3,579	1,298	36 %
Total Revenue	\$ 62,631	\$ 37,343	\$ 25,288	68 %
Cost of Revenues (ex. Depreciation) ⁽²⁾	(44,979)	(28,287)	(16,692)	59 %
Selling, general & administrative	(50,438)	(26,804)	(23,634)	88 %
Adjusted EBITDA ⁽³⁾	\$ (80,144)	\$ (69,220)	\$ (10,924)	16 %

(1) Includes revenue from licensing and sales of microbes and media.

(2) Consists of cost of revenues from contracts with customers and grants (exclusive of depreciation), cost of revenue from collaboration agreements (exclusive of depreciation) and cost of revenue from related party transactions (exclusive of depreciation).

(3) Adjusted EBITDA, a non-GAAP financial measure, is calculated as net loss, excluding the impact of depreciation, interest income, net, stock-based compensation, change in fair value of warrant liabilities, change in fair value of SAFE liabilities, change in fair value of the FPA Put Option liability and Fixed Maturity Consideration, transaction costs on issuance of Forward Purchase Agreement, (loss) gain from equity method investees and other one-time costs related to the Business Combination and securities registration on Form S-4 and our registration statement on Form S-1. Adjusted EBITDA is a supplemental measure that is not a substitute for, or superior to, measures of financial performance prepared in accordance with US GAAP. Adjusted EBITDA does not represent, and should not be considered, an alternative to net income (loss), as determined in accordance with US GAAP. See "Non-GAAP Financial Measures" for additional information and reconciliation of Adjusted EBITDA to net loss, its most directly comparable US GAAP measure.

Key Non-Financial Metrics:

	(in thousands of tonnes per annum)
Capacity as of December 31, 2022	150
Additions	94
Capacity as of December 31, 2023	244

Capacity based on LanzaTech's technology includes capacity by customers and our cost method investee, is one of the key drivers for the Company's licensing revenues given that they are usually contracted on a percentage-of-revenue, a dollars-per-tonne, or fixed-consideration basis.

Components of Operating Results

While we have offerings in multiple market segments and operate in multiple countries, we operate and manage our business as one reportable operating segment. Nearly all of our service offerings are delivered and supported on a global basis. Additionally, most of our service offerings are deployed in a similar way, and we evaluate our financial information and resources and assess the performance of these resources on a consolidated basis.

Revenues

We earn revenue through engineering and other services contracts, U.S. government contracts, joint development agreements, and licensing agreements, which, together, represent a single operating segment. Revenues can be viewed as a combination of the following:

- Biorefining which includes feasibility studies and engineering services related to basic design of commercial plants utilizing our technologies, and licensing of intellectual property and software when customers deploy our biorefining technology;

- Joint development and research services related to novel technologies and the development of biocatalysts; and
- Sale of CarbonSmart products to customers.

Revenue is measured based on the consideration specified in customer contracts and excludes amounts collected on behalf of third parties.

Biorefining

We provide feasibility studies and basic design and engineering services used for detailed design, procurement, and construction of commercial plants that utilize our technologies, along with the sale of equipment and microbes. The services provided are recognized as a performance obligation satisfied over time. Revenue is recognized using the cost-to-cost input method for certain engineering services or the percentage of completion method in accordance with Accounting Standards Codification (“ASC”) 606, *Revenue from Contracts with Customers* (“ASC 606”). Revenue for the sale of microbes and media is recognized at a point in time, depending on when control transfers to the customer.

We license intellectual property to generate recurring revenue in the case of running royalties, or one-time revenue, in the case of fixed consideration royalties, when our customers deploy our technology in their biorefining plants. When licenses are considered to be distinct performance obligations, the recognition of revenue is dependent on the terms of the contract, which may include fixed consideration or royalties based on sales or usage, in which case, the revenue is recognized when the subsequent sale or usage occurs or when the performance obligation to which some or all of the sales or usage-based royalty is allocated or has been satisfied, whichever is later.

Joint Development and Contract Research

We perform R&D services related to novel technologies and the development of biocatalysts for commercial applications, mainly to produce fuels and chemicals. We engage in two main types of R&D services – joint development agreements, and other contract research, including projects with the U.S. Department of Energy. Such services are recognized as a performance obligation satisfied over time. Revenue is recognized based on milestone completion, when payments are contingent upon the achievement of such milestones, or based on stage of contract or phase completion method when enforceable rights to payment exist. When no milestones or stages are clearly defined, management has determined that the cost incurred, input method, is an appropriate measure of progress toward complete satisfaction of the performance obligations under ASC 606 and estimates its variable consideration under the expected value method.

Revenue is not recognized in advance of customer acceptance of a milestone, when such acceptance is contractually required. Payments for R&D services with no contractual payments are not due from customers until a technical report is submitted; therefore, a contract asset is recognized at milestone completion but prior to the submission of a technical report. The contract asset represents the Company’s right to consideration for the services performed at milestone completion. Occasionally, customers provide payments in advance of us providing services which creates a contract liability for the Company. The contract liability represents our obligation to provide services to a customer.

CarbonSmart

We sell CarbonSmart products and intermediaries directly to customers purchased from our licensed plants using the Company's proprietary technologies. Revenue is recognized at a point in time when control transfers to the customer, which varies depending on the shipping terms. We generally acts as the principal in such transactions and accordingly, recognize revenue and cost of revenues on a gross basis.

Cost of Revenues

Our R&D costs associated with external projects, engineering, and other direct costs of services are related to revenue agreements with customers, related parties, and collaborative partners, and represent costs of revenue. Costs include both internal and third-party fixed and variable costs and include materials, supplies, labor, and fringe benefits.

Research and Development Expenses

R&D expenses consist of personnel costs, external services, materials and supplies associated with internal R&D projects as well as various laboratory activities. Indirect R&D costs include depreciation and other indirect overhead expenses. We expect our R&D activities to increase in the future as revenue grows but decrease as a percentage of our overall cost structure.

Selling, General and Administrative Expenses

Selling, general and administrative expenses ("SG&A") consist primarily of personnel costs, costs of general corporate development activities, travel-related expenses, and other indirect overhead costs.

Our general and administrative expenses consist primarily of personnel costs for our executive, finance, corporate and other administrative functions, intellectual property and patent costs, facilities and other allocated expenses, other expenses for outside professional services, including legal, human resources, audit and accounting services, and insurance costs. Our general and administrative expenses have increased in 2023 as a result of becoming a public company, including additional costs relating to compliance with the rules and regulations of the SEC and stock exchange rules, legal and audit services, additional insurance, investor relations activities, and other administrative and professional services. We expect these costs to stabilize, but remain at higher levels than they were prior to the Business Combination. We also expect our intellectual property expenses to increase as we expand and increase protection of our intellectual property portfolio.

Other Expense, Net

Other expense, net relates to miscellaneous other income and expense and foreign currency gains and losses. These items include the mark-to-market adjustments on all liability classified warrants, the FPA Put Option liability, the Fixed Maturity Consideration, and SAFE liabilities. Interest income, net consists of income earned from our cash, cash equivalents and debt security investments. Our interest income has increased following the completion of the Business Combination as we invested the net proceeds in a variety of capital preservation financial instruments, including short-term, investment-grade, interest-bearing obligations of the U.S. government and its agencies.

Loss (Gain) from Equity Investees, Net

We hold interests in LanzaJet located in the United States, and the Shougang Joint Venture (SGLT) located in China which we have determined to be variable interest entities ("VIEs") for which it has been determined we are not the primary beneficiary. Our variable interests primarily relate to entities in which we have a non-controlling equity interest. Although these financial arrangements resulted in holding variable interests in these entities, they do not empower us to direct the activities of the VIEs that most significantly impact the VIEs' economic performance, therefore LanzaTech has determined it is not the primary beneficiary and does not currently consolidate these VIEs.

Through our holdings in LanzaJet, our representation on the board of directors and participation in the policy-making process, as well as the material intra-entity transactions, we have determined that we can exercise significant influence over the activities of LanzaJet. Our interest in LanzaJet is accounted for under the equity method of accounting, with income (loss) from equity method investees, net recognized in our consolidated statements of operations and comprehensive loss and equity method investments recognized on our consolidated balance sheets.

As of September 30, 2022, we no longer have significant influence over the activities of SGLT and as a result, our investment is accounted for at cost with adjustments for observable changes in price and impairment (if any) recognized in our consolidated statements of operations and comprehensive loss. Prior to September 30, 2022, we accounted for SGLT under the equity method of accounting, with income (loss) from equity method investees, net, including gain on dilution recognized in our consolidated statements of operations and comprehensive loss and equity method investments recognized on our consolidated balance sheet.

The Company currently has a license agreement with SGLT and a letter agreement with SGLT and Sinopec Capital Co., Ltd related to the use of our intellectual property and potential collaborations. These agreements do not provide LanzaTech with the power to direct the activities that are most significant to the economic performance of these entities.

Income Tax

Current and deferred taxes are calculated based on tax rates enacted or substantively enacted at the reporting date and are recognized in profit or loss except when the tax relates to items charged or credited to other comprehensive income, in which case the tax is also recognized in other comprehensive income. Deferred tax is recognized in respect of temporary differences arising between the tax bases of assets and liabilities and their carrying amounts in the financial statements. Deferred tax assets including those relating to temporary differences, net operating loss carryforwards and tax credit carryforwards, are only recognized to the extent it is more likely than not that future taxable income will be available to utilize the temporary differences and carryforwards. Our net operating loss carryforwards are subject to shareholder continuity rules, and may be impacted by future fundraising activities.

We maintain a valuation allowance against the full value of our net deferred tax assets because management believes the recoverability of the tax assets is not more likely than not.

Results of Operations — Year Ended December 31, 2023 Compared to Year Ended December 31, 2022

The results of operations presented below should be reviewed in conjunction with our consolidated financial statements and notes. The following table sets forth our consolidated results of operations for the periods indicated:

	Year Ended December 31,		Change	
	2023	2022	2023 vs. 2022	
(In thousands, except for per share amounts)				
Total revenue	62,631	37,343	25,288	68 %
Cost of revenues (exclusive of depreciation shown below)	(44,979)	(28,287)	(16,692)	59 %
Operating expenses:				
Research and development.....	(68,142)	(53,191)	(14,951)	28 %
Depreciation expense	(5,452)	(4,660)	(792)	17 %
Selling, general and administrative expense.....	(50,438)	(26,804)	(23,634)	88 %
Total operating expenses	\$ (124,032)	\$ (84,655)	\$ (39,377)	47 %
Loss from operations	(106,380)	(75,599)	(30,781)	41 %
Interest income, net.....	4,572	8	4,564	N/M
Other expense, net.....	(29,388)	(2,757)	(26,631)	N/M
Total other expense, net	(24,816)	(2,749)	(22,067)	N/M
Loss before income taxes	\$ (131,196)	\$ (78,348)	\$ (52,848)	67 %
Income tax benefit.....	—	—	—	N/M
(Loss) gain from equity method investees, net.....	(2,902)	1,992	(4,894)	(246) %
Net loss	\$ (134,098)	\$ (76,356)	\$ (57,742)	76 %
Other comprehensive loss:				
Foreign currency translation adjustments.....	(376)	(1,449)	1,073	74 %
Comprehensive loss	\$ (134,474)	\$ (77,805)	\$ (56,669)	73 %
Net loss per share - basic and diluted.....	(0.79)	(12.37)		
Weighted-average number of common shares outstanding - basic and diluted.....	176,023,219	9,302,080		

Revenue

Total revenue increased \$25.3 million, or 68%, in the year ended December 31, 2023 compared to the year ended December 31, 2022. The increase was primarily driven by engineering and other services with an increase of \$16.6 million in revenue from contracts with existing customers and governmental entities whose projects have moved to the next phase of development and an increase of \$3.6 million from contracts with new customers. Additionally, we had a \$2.4 million increase in revenue from joint development agreements, a \$1.3 million increase in revenue from licensing mainly driven by paid-up sublicensing fees, a \$1.3 million increase in CarbonSmart revenue and a \$0.1 million increase in other contract research.

Cost of Revenues

Cost of revenue increased \$16.7 million, or 59%, in the year ended December 31, 2023 compared to the year ended December 31, 2022. The increase is primarily driven by the higher revenue performance from engineering and other services, mostly from projects that moved to the next phase of development, and inflation in costs and wages.

Research and Development

R&D expense increased \$15.0 million, or 28%, in the year ended December 31, 2023 compared to the year ended December 31, 2022. This was primarily due to an increase in stock compensation expense consisting of \$4.1 million in incremental expense associated with stock compensation granted in 2023 and \$1.2 million resulting from the vesting of RSAs in connection with the Business Combination, an increase of \$4.1 million in R&D personnel and contractors expenses to accelerate growth, an increase of \$2.8 million in consumables expenses, an increase of \$1.2 million in external R&D service provider costs, and an increase of \$1.6 million in facilities expenses.

Selling, General and Administrative Expense

SG&A expense increased \$23.6 million, or 88%, in the year ended December 31, 2023 compared to the year ended December 31, 2022. This was primarily due to an increase of \$13.0 million of external services and contractors mostly driven by one-time professional services fees related to the Business Combination, as well as \$3.9 million resulting from the vesting of RSAs and one-time employee transition arrangements related to the Business Combination. The increase is also attributed to \$5.3 million in incremental expense associated with stock compensation granted in 2023, an increase of \$0.7 million in bad debt expense related to an allowance for a customer receivable, and an increase of \$0.7 million in facilities and consumables expenses.

Interest income, net

Interest income, net increased \$4.6 million in the year ended December 31, 2023 compared to the year ended December 31, 2022. The increase is primarily attributable to interest earned on higher cash balances held in savings and money market accounts subsequent to the Business Combination. The increase is additionally attributable to the amortization of the discount and accrued interest on the held-to-maturity securities.

Other Expense, Net

Other expense, net increased \$26.6 million, in the year ended December 31, 2023 compared to the same period in 2022. The increase is primarily due to an overall net loss on changes in the fair value of our financial instruments.

Liquidity and Capital Resources

Cash and Cash Equivalents

Cash and cash equivalents comprise cash on hand, demand deposits at banks, and other short-term, highly liquid investments with original maturity of three months or less that are readily convertible to known amounts of cash and which are subject to an insignificant risk of changes in value. The following table shows the balances of our cash, cash equivalents and restricted cash as of December 31, 2023 and December 31, 2022:

(In thousands, except for percentages)	As of		Change	
	December 31, 2023	December 31, 2022	2023 vs. 2022	
Total cash, cash equivalents, and restricted cash	\$ 76,284	\$ 83,710	\$ (7,426)	(9)%

As of December 31, 2023, compared to December 31, 2022, LanzaTech's cash, cash equivalents, and restricted cash decreased by \$7.4 million, or 9%, primarily due to the net loss adjusted for non-cash charges (see cash flow section below), the partial prepayment for the FPA, purchases of debt security investments, purchases of property, plant and equipment and the repurchase of equity instruments of the Company. The decrease is offset by cash received from the closing of the Business Combination and PIPE financing.

Debt Security Investments

Debt security investments comprise mainly held-to-maturity U.S. Treasury and high quality corporate securities that the Company has both the ability and intent to hold to maturity. These securities all mature within one year and will provide additional liquidity upon maturity. As of December 31, 2023, held-to-maturity security investments totaled \$45.2 million. The Company did not have any held-to-maturity security investments as of December 31, 2022.

Sources and Uses of Capital

Since inception, we have financed our operations primarily through equity and debt financing.

Our ability to successfully develop products and expand our business depends on many factors, including our ability to meet working capital needs, the availability of equity or debt financing and, over time, our ability to generate cash flows from operations. We manage our capital to ensure that LanzaTech can continue as a going concern while maximizing the return to stakeholders through the optimization of debt and equity balances. Following completion of the Business Combination, the Company may change its capital risk strategy related to use of capital proceeds from the Business Combination to increase its product offerings or for business growth purposes.

As of December 31, 2023, our capital structure consists of equity (comprising issued capital, and accumulated deficit) and the Brookfield SAFE. We are not subject to any externally imposed capital requirements.

Prior to the Business Combination, LanzaTech had six outstanding series of redeemable preferred stock. LanzaTech preferred shares were convertible at the holder's option into shares of common stock, on a share-for-share basis, using a conversion rate determined by dividing the original issue price by the conversion price. Each LanzaTech preferred share was automatically converted into a common share of LanzaTech on the Closing Date.

On October 2, 2022, LanzaTech entered into the Brookfield SAFE with Brookfield and received a cash payment of \$50.0 million as the Initial Purchase Amount. In exchange, the Company granted to Brookfield the right to certain shares of the Company's common stock. Following the closing of the Business Combination, Brookfield may, at any time at its option, convert all or a portion of the Initial Purchase Amount less any amount that has already been converted or repaid into shares of common stock.

LanzaTech does not have any outstanding debt, other than the Brookfield SAFE and the FPA Put Option Liability and Fixed Maturity Consideration, which are all classified as liabilities for accounting purposes, on its consolidated balance sheets as of December 31, 2023.

On November 9, 2022, LanzaTech committed to purchase \$5.5 million of Subordinated Secured Notes in a funding for LanzaJet's subsidiary Freedom Pines Fuels LLC, which occurred on May 1, 2023. The Subordinated Secured Notes are secured by a security interest over the intellectual property owned or in-licensed by LanzaJet. LanzaJet also provides a guarantee of any costs and expenses required to complete the initial facility and achieve commercial operation.

LanzaTech, AMCI and ACM executed the Forward Purchase Agreement on February 3, 2023. Pursuant to the Forward Purchase Agreement, ACM obtained 5,916,514 shares of common stock on the open market for \$10.16 per share ("Redemption Price"), and such purchase price of \$60.1 million was funded by the use of Trust Account proceeds as a partial prepayment ("Prepayment Amount") for the Forward Purchase Agreement redemption at the end of three years ("Maturity Date"). ACM has the right at the end of three years to return the shares and keep the Prepayment Amount plus the fees described below, or may, at ACM's sole discretion, partially or fully terminate this transaction over the course of the three-year term by returning cash in an amount equal to the number of shares terminated ("Terminated Shares") multiplied by the Redemption Price, which may be reduced in the case of certain dilutive events ("Reset Price"). At the end of the three-year term, LanzaTech is obligated to pay ACM an amount equal to the product of (1) 7,500,000 less (b) the number of Terminated Shares multiplied by (2) \$2.00 (the "Maturity Consideration"). In addition to the Prepayment Amount and the Maturity Consideration, on the Maturity Date, New LanzaTech will pay to ACM an amount equal to the product of (x) 500,000 and (y) the Redemption Price, totaling \$5.1 million (the "Share Consideration"). However, at the time, the Company may not have sufficient funds or be able to obtain financing from third parties to pay such amounts. The Company also may not have sufficient shares authorized to pay the Maturity Consideration in shares. Breach by the Company of any of these obligations could constitute an event of default under the Forward Purchase Agreement, which could subject the Company to financial exposure thereunder (including arising from potential indemnification claims by the Seller). In addition, future debt or other contractual agreements may contain cross-default or cross-acceleration provisions that could be triggered if we defaulted on our obligations to the Purchasers. Any or all of these consequences could have material adverse impact on us.

On February 8, 2023, LanzaTech completed the Business Combination and related transactions. The completion of the Business Combination and related transactions resulted in \$153.3 million of cash proceeds to LanzaTech. The amount released to LanzaTech is net of the transaction expenses related to the Business Combination and the amount paid to the Purchasers in relation to the Forward Purchase Agreement. Pursuant to the Forward Purchase Agreement, the Purchasers purchased 5,916,514 Class A common shares on the open market for approximately \$10.16 per share, and such purchase price of \$60.1 million was deposited with the Purchasers as a partial prepayment for the Forward Purchase Agreement redemption at the end of three years.

In the normal course of our business, we also enter into purchase commitments or other transactions in which we make representations and warranties that relate to the performance of our goods and services. We do not expect material losses related to these transactions.

We believe our existing cash and cash equivalents will be sufficient to fund our operations for at least the next 12 months from the date of this Annual Report. However, our liquidity assumptions may prove to be incorrect, and we could utilize our available financial resources sooner than we currently expect. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth under “Risk Factors”.

If we determine that we require additional financing to meet our operating requirements, we may be unable to secure such financing on acceptable terms, or at all. If we raise additional funds by issuing equity and/or convertible debt securities, dilution to our existing stockholders will result. If we raise additional financing and incur indebtedness, we would be subject to increased fixed payment obligations and could also be subject to certain restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. If we are unable to obtain additional funds, we will have to reduce our operating costs, which will cause a delay or reduction in our technology development and commercialization programs.

Cash Flows

For the years ended December 31, 2023 and 2022

The following table provides a summary of our cash flows for the years ended December 31, 2023 and December 31, 2022:

(In thousands, except for percentages)	Year Ended December 31,		Change	
	2023	2022	2023 vs. 2022	
<i>Net cash provided by (used in):</i>				
Operating activities.....	\$ (97,296)	\$ (84,703)	\$ (12,593)	15 %
Investing activities.....	(57,911)	(10,686)	(47,225)	442 %
Financing activities.....	148,185	50,545	97,640	N/M
Effects of currency translation.....	(404)	(178)	(226)	(127)%
Net decrease in cash, cash equivalents, and restricted cash.....	\$ (7,426)	\$ (45,022)		

Cash Flows Used in Operating Activities

For the year ended December 31, 2023, net cash used in operating activities was \$(97.3) million. This was primarily driven by a net loss of \$(134.1) million, adjusted for the loss on change in fair value of the FPA Put Option liability and Fixed Maturity Consideration of \$44.3 million, share-based compensation expense of \$15.2 million, depreciation of property, plant and equipment of \$5.5 million, non-cash lease expense of \$1.5 million, the non-cash loss from equity method investees, net of \$2.9 million, provision for losses on trade and other receivables of \$0.7 million, and non-cash foreign currency exchange gain of \$0.2 million. The additional impact to net cash usage is related to the adjustments for net cash changes in operating assets and liabilities of \$(15.9) million, the gain on change of fair value of SAFE and warrant liabilities of \$(14.5) million, the non-cash recognition of licensing revenue of \$(1.8) million, and amortization of the discount on the debt security investment of \$(1.3) million.

For the year ended December 31, 2022, net cash used in operating activities was \$(84.7) million. This was primarily driven by a net loss of \$(76.4) million, adjusted for share-based compensation expense of \$2.5 million, depreciation of property, plant and equipment of \$4.7 million, the loss from equity method investees, net of \$(2.0) million, non-cash lease expense of \$1.8 million and non-cash foreign currency exchange loss of \$0.7 million. The additional net cash usage is related to the adjustments for net cash changes in operating assets and liabilities of \$(15.8) million, non-cash recognition of licensing revenue of \$(2.2) million, and the gain on change in fair value of SAFE and warrant liabilities of \$1.9 million.

Cash Flows Used in Investing Activities

For the year ended December 31, 2023, net cash used in investing activities was \$(57.9) million, primarily driven by the investment in debt securities of \$(93.9) million, the purchase of property, plant and equipment of \$(8.6) million, the funding of the loan commitment to LanzaJet of \$(5.2) million, and the purchase of additional interests in our equity method investment in the form of warrants which were accounted as in-substance common stock of \$(0.3) million. These outflows are partially offset by \$50 million of maturities from the investment in debt securities

For the year ended December 31, 2022, net cash used in investing activities was \$(10.7) million, driven by the purchase of property, plant and equipment.

Cash Flows from Financing Activities

For the year ended December 31, 2023, net cash provided by financing activities was \$148.2 million. This was driven by \$213.4 million in proceeds from the Business Combination and PIPE financing and proceeds of \$2.6 million from the exercise of options to acquire shares of common stock of the Company. This was partially offset by the Forward Purchase Agreement repayment amount of \$(60.1) million and by the repurchase of equity instruments of \$(7.7) million.

For the year ended December 31, 2022, net cash provided by financing activities was not significant.

Off-Balance Sheet Arrangements

As of December 31, 2023 and December 31, 2022, we did not engage in any off-balance sheet arrangements, including the use of structured finance, special purpose entities or variable interest entities.

Critical Accounting Policies and Management Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements that have been prepared in accordance with US GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses, and related disclosures. We consider an accounting estimate to be critical to the consolidated financial statements if the estimate is complex in nature or requires a high degree of judgment and actual results may differ from these estimates with any such differences being potentially material. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances. We evaluate our estimates and assumptions on an ongoing basis. While our significant accounting policies are more fully described in Note 2 to our consolidated financial statements, we believe that the accounting policies discussed below are critical to understanding our historical and future performance:

Revenue Recognition

We recognize revenue from our contracts with customers in accordance with ASC 606. The Company also has certain partnership agreements that are within the scope of ASC 808 and contract with governmental entities that are accounted for as grant contributions. We primarily earn revenue from services related to feasibility studies and basic engineering design of commercial plants, joint development, and contract R&D activities to develop novel biocatalysts and related technologies. When accounting for these arrangements, we must develop assumptions that require judgment such as determining the performance obligations in the contract, determining the transaction price for the contract and stand-alone selling price for each performance obligation identified, and measuring progress towards satisfaction of the performance obligations.

The determination of whether goods and services qualify as distinct performance obligations is based on the contract terms and our view of the business. Typically, our goods and services provided under a contract with a customer are viewed as a single performance obligation. Most of our arrangements provide fixed consideration, however, when there are variable consideration elements, we estimate the transaction price and whether revenue should be constrained. Significant estimates and judgments are also used when a material right is provided to the customer. In these instances, management estimates the stand-alone selling price and apportions the total transaction price to this material right.

Most performance obligations on our non-governmental arrangements are recognized over time. We typically use percentage completion when certain revenue recognition requirements are met. We exercise judgment when determining the percentage of completion against the total transaction price initially estimated. For arrangements with government agencies, we measure the satisfaction of performance obligations over time using the input method which requires judgment when selecting the most indicative measure of such performance.

Grant Revenue

Grants received, including cost reimbursement agreements, are assessed to determine if the agreement should be accounted for as an exchange transaction or a contribution. An agreement is accounted for as a contribution if the resource provider does not receive commensurate value in return for the assets transferred. Contributions are recognized as grant revenue when all donor-imposed conditions have been met.

Forward Purchase Agreement Valuation

The Company has determined that the FPA Put Option, including the Variable Maturity Consideration, within the Forward Purchase Agreement is (i) a freestanding financial instrument and (ii) a derivative (i.e., an in-substance written put option). This derivative was recorded as a liability at fair value on the consolidated balance sheet as of the reporting date. The fair value of the derivative was estimated using a Monte-Carlo Simulation in a risk-neutral framework. Specifically, the future stock price is simulated assuming a Geometric Brownian Motion (“GBM”). For each simulated path, the forward purchase value is calculated based on the contractual terms and then discounted back to present. Finally, the value of the forward is calculated as the average present value over all simulated paths. The methodology and main assumptions remained constant during the period in 2023.

The Company separately identified two other freestanding financial instruments in the Forward Purchase Agreement, the Share Consideration and the Minimum Maturity Consideration. As both of these payments are for a fixed amount at the Maturity Date, we have accounted for these cash outflows as debt-like instruments. In accordance with ASC 825, *Financial Instruments*, we have elected to account for these instruments under the Fair Value Option. As the terms and conditions of these payments are the same, they are accounted for together on the consolidated balance sheet as the Fixed Maturity Consideration. The fair value of the Fixed Maturity Consideration was estimated within the same Monte-Carlo simulation as the FPA Put Option to effectively model the potential acceleration of the Maturity Date and the corresponding acceleration in the payment of the Fixed Maturity Consideration. The methodology and main assumptions remained constant during the period in 2023.

Stock-Based Compensation

In exchange for certain employee and director services, compensation is given in the form of equity-based awards. The Company accounts for equity-based compensation in accordance with ASC 718, Compensation – Stock Compensation. Accordingly, equity-classified awards are recorded based on the grant date fair value and expensed over the requisite service period for the respective award. Liability-classified awards are remeasured at the end of each reporting period and expensed based on the percentage of requisite service that has been rendered.

The Company’s equity-based awards include stock option awards, restricted stock units (“RSUs”), stock-appreciation rights (“SARs”) and restricted stock (“RSAs”) issued by the Company, which vest based on either time and/or the achievement of certain market or performance conditions. We have elected not to estimate forfeitures which means compensation expenses may be reversed in the period in which forfeiture occurs. Compensation expense is recognized in the Company’s consolidated statements of operations and comprehensive loss, primarily within research and development expenses. For awards with only service conditions that have a graded vesting schedule, the Company recognizes compensation cost on a straight-line basis over the requisite service period for the entire award. For awards with market or performance conditions that have a graded vesting schedule, the Company recognizes compensation cost on a straight-line basis over the requisite service period for each tranche of the award. Compensation expense resulting from performance awards is recognized over the requisite service period when it is probable that the performance condition will be met. The recognized compensation expense for performance awards is adjusted based on an estimate of awards ultimately expected to vest.

We mostly apply judgment for stock-based awards with performance conditions, because compensation expense is recognized only when it is probable the performance conditions will be met (i.e. occurrence of a liquidity event). Management determined that the occurrence of the liquidity event is probable when the event is consummated, as such, compensation expense related to the RSAs was recorded at the time of the Business Combination.

We estimate the fair value of service and performance-based options and SARs using a Black-Scholes option pricing model, which requires the use of highly subjective assumptions including:

- **Expected Term** — We have opted to use the “simplified method” for estimating the expected term of plain-vanilla options and SARs, whereby the expected term equals the arithmetic average of the vesting term and LanzaTech’s contractual term of the option (generally 10 years). We use peer data to estimate the expected term of options and SARs that do not have plain-vanilla characteristics.

- Risk-Free Interest Rate — The risk-free rate assumption is based on the U.S. Treasury zero-coupon instruments with maturities similar to the expected term of LanzaTech's stock options and SARs.
- Expected Dividend — We have not issued any dividends and do not anticipate issuing dividends on LanzaTech's common stock. As a result, we have estimated the dividend yield to be zero.
- Expected Volatility — Due to our limited operating history and a lack of company-specific historical and implied volatility data, we have based our estimate of expected volatility on the historical volatility of a group of similar companies that are publicly traded. The historical volatility data was computed using the daily closing prices for the various companies' shares during the equivalent period of the estimated expected term of the stock-based awards.

Changes in the assumptions above can have an impact on the result of the valuation. We estimate the fair value of market-based RSUs using the Monte Carlo simulation model that uses assumptions including expected volatility, and the derived service period. Please refer to the expected volatility discussion above.

We estimate the fair value of the RSAs and RSUs with only service conditions using the fair value of common stock on the date of measurement.

Brookfield SAFE Valuation

The Brookfield SAFE was classified as a liability on our consolidated balance sheets as of December 31, 2023 and 2022. The company elected to record the instrument using the fair value option under ASC 825.

The Brookfield SAFE was issued on October 2, 2022. As of its issuance date, the Company determined the fair value was equal to the investment amount of \$50 million based on the orderly nature of the transaction. The value as of December 31, 2022 remained the same due to the proximity of the valuation date to the issuance date (i.e., less than two months) and the absence of events which would indicate a change in expected payoffs to the investor.

As of December 31, 2023, the Company expects to present sufficient projects to Brookfield to result in the Brookfield SAFE being automatically converted into shares. We determined this by evaluating the pipeline of potential Brookfield projects in various stages of development, and determining the likelihood that a sufficient number of projects should meet the criteria for investment prior to maturity of the note. Since the liquidity price is not expected to change during the life of the Brookfield SAFE, the number of shares that Brookfield receives is fixed. Based on this expectation, the company determined the fair value of the Brookfield SAFE using the as-converted value, which is calculated as the initial purchase amount, divided by the liquidity price, times the stock price, resulting in an estimated fair value of \$25 million recorded on the consolidated balance sheet as of December 31, 2023.

Preferred Stock Warrant Liabilities

Warrants to purchase shares of redeemable convertible preferred stock were classified as liabilities on our consolidated balance sheets as of December 31, 2022. These warrants were recognized at fair value with subsequent changes recorded in other income (expense), net, in the statements of operations and comprehensive loss.

We utilized the Black-Scholes option-pricing model, which incorporates management's assumptions and estimates, to value the preferred stock warrants. Estimates and assumptions impacting the fair value measurement include the fair value per share of the underlying redeemable convertible preferred stock, the remaining contractual term of the warrants, risk-free interest rate, expected dividend yield and expected volatility of the price of the underlying preferred stock. We determined the fair value per share of the underlying preferred stock by taking into consideration our most recent issuance of our preferred stock with additional factors deemed relevant, because at the time we were a private company and lacked company-specific historical and implied volatility information of our stock. We determined the remaining contractual term based on the contract term of the warrants adjusted for the probability of a liquidity event. Expected stock volatility was based on the historical volatility of publicly traded peer companies for a similar remaining contractual term.

In connection with the closing of the Business Combination, all warrants to purchase preferred stock were exercised on a cashless basis for shares of preferred stock, which were converted at the closing of the Business Combination into shares of common stock. Immediately before the exercise of these warrants, the associated warrant liability was marked-to-market a final time. After the preferred stock warrants were exercised and converted, the estimates used in the periodic valuation of the preferred stock warrants were no longer considered critical.

Common Stock Valuation

Prior to the Business Combination, there was no public market for our equity instruments and the estimated fair value of our shares of common stock was determined by management and approved by the LanzaTech Board as of the grant date. The LanzaTech Board considered our most recently available independent third-party valuation of the common stock and additional objective and subjective factors that it believed were relevant at the date of the grant. The valuation of our common stock is one of the key inputs in the valuation of our preferred stock warrant instruments as of December 31, 2022, which are classified as liabilities in our consolidated balance sheet and fully exercised in 2023 at the close of the Business Combination. Additionally, the valuation of common stock is one of the key inputs in the valuation of share-based compensation granted prior to the close of the Business Combination.

The independent third-party valuations of the common stock were performed in accordance with the guidance outlined in the AICPA Practice Aid, Valuation of Privately-Held Company Equity Securities Issued as Compensation (“AICPA’s Practice Aid”). The specialist considered all objective and subjective factors, including management’s best estimate of our business condition, prospects, and operating performance at each valuation date. Other significant factors included:

- The rights, preferences, and privileges of our preferred stock as compared to those of our common stock, including the liquidation preferences of our preferred stock;
- Our results of operations, and financial position;
- Arms-length transactions involving recent rounds of preferred stock financings;
- The lack of liquidity of our common stock;
- Our stage of development and business strategy and the material risks related to our business and industry;
- The valuation of publicly traded companies in relevant industry sectors, as well as recently completed mergers and acquisitions of peer companies;
- The likelihood of achieving a liquidity event, such as an initial public offering or a sale of our company, given prevailing market conditions; and

In valuing our common stock, the fair value of our business was determined using an option pricing model to backsolve the value of the security from our most recent round of financing which implies a total equity value as well as a per-share common stock value at the valuation date.

Following the Business Combination, the fair market value of the common stock will be determined based on the quoted market price of the common stock. After the close of the Business Combination which established a public market for our common stock, the estimates used in the valuation of our common stock were no longer considered critical.

Filing Status

The market value of LanzaTech’s common stock that was held by non-affiliates (i.e. public float) exceeded \$700 million as of the last business day of the Company’s 2023 second fiscal quarter which resulted in the following changes to LanzaTech’s filing status:

- LanzaTech became a large accelerated filer as of 12/31/2023.
- LanzaTech lost emerging growth company status as of 12/31/2023.
- LanzaTech no longer qualified as a smaller reporting company as of the last business day of the Company’s second fiscal quarter. LanzaTech continued to use the scaled disclosures permitted for SRCs through this Form 10-K, and must begin providing non-scaled larger company disclosures in its quarterly report on Form 10-Q for the first quarter of 2024. The use of reduced disclosure obligations in this Form 10-K may also make comparison of LanzaTech’s financial statements with other public companies difficult or impossible.

Recently Issued and Adopted Accounting Standards

See Note 2 to our consolidated financial statements for a description of recent accounting pronouncements, including the actual and expected dates of adoption and estimate effects on our consolidated results of operations and financial condition, which is incorporated herein by reference.

Non-GAAP Financial Measures

To supplement our financial statements presented in accordance with US GAAP and to provide investors with additional information regarding our financial results, we have presented adjusted EBITDA, a non-GAAP financial measure. Adjusted EBITDA is not based on any standardized methodology prescribed by US GAAP and is not necessarily comparable to similarly titled measures presented by other companies.

We define adjusted EBITDA as our net loss, excluding the impact of depreciation, interest income, net, stock-based compensation, change in fair value of warrant liabilities, change in fair value of SAFE liabilities, change in fair value of the FPA Put Option liability and Fixed Maturity Consideration, transaction costs on issuance of Forward Purchase Agreement, (loss) gain from equity method investees and other one-time costs related to the Business Combination and securities registration on Form S-4 and our registration statement on Form S-1. We monitor and have presented in this Annual Report adjusted EBITDA because it is a key measure used by our management and the Board to understand and evaluate our operating performance, to establish budgets, and to develop operational goals for managing our business. We believe adjusted EBITDA helps identify underlying trends in our business that could otherwise be masked by the effect of certain expenses that we include in net loss. Accordingly, we believe adjusted EBITDA provides useful information to investors, analysts, and others in understanding and evaluating our operating results and enhancing the overall understanding of our past performance and future prospects.

Adjusted EBITDA is not prepared in accordance with US GAAP and should not be considered in isolation of, or as an alternative to, measures prepared in accordance with US GAAP. There are a number of limitations related to the use of adjusted EBITDA rather than net loss, which is the most directly comparable financial measure calculated and presented in accordance with US GAAP. For example, adjusted EBITDA: (i) excludes stock-based compensation expense because it is a significant non-cash expense that is not directly related to our operating performance; (ii) excludes depreciation expense and, although this is a non-cash expense, the assets being depreciated and amortized may have to be replaced in the future; (iii) excludes gain or losses on equity method investee; and (iv) excludes certain income or expense items that do not provide a comparable measure of our business performance. In addition, the expenses and other items that we exclude in our calculations of adjusted EBITDA may differ from the expenses and other items, if any, that other companies may exclude from adjusted EBITDA when they report their operating results. In addition, other companies may use other measures to evaluate their performance, all of which could reduce the usefulness of our non-GAAP financial measures as tools for comparison.

The following table reconciles adjusted EBITDA to net loss, the most directly comparable financial measure calculated and presented in accordance with US GAAP.

Reconciliation of Net Loss to Adjusted EBITDA

(In thousands)	Year Ended December 31,	
	2023	2022
Net Loss	\$ (134,098)	\$ (76,356)
Depreciation.....	5,452	4,660
Interest income, net.....	(4,572)	(8)
Stock-based compensation expense and change in fair value of SAFE and warrant liabilities ⁽¹⁾	728	4,476
Change in fair value of the FPA Put Option and Fixed Maturity Consideration liabilities	44,300	—
Transaction costs on issuance of Forward Purchase Agreement.....	451	—
Loss (gain) from equity method investees, net	2,902	(1,992)
One-time costs related to the Business Combination, initial securities registration and non-recurring regulatory matters ⁽²⁾	4,693	—
Adjusted EBITDA	\$ (80,144)	\$ (69,220)

(1) Stock-based compensation expense represents expense related to equity compensation plans

(2) Represents costs incurred related to the Business Combination that do not meet the direct and incremental criteria per SEC Staff Accounting Bulletin Topic 5.A to be charged against the gross proceeds of the transaction, but are not expected to recur in the future, as well as costs incurred subsequent to deal close related to our securities registration on Form S-4 and our registration statement on Form S-1. Regulatory matters includes fees related to non-recurring items during the year ended December 31, 2023.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to a variety of market and other risks, including the effects of changes in interest rates, inflation and foreign currency translation and transaction risks, as well as risks to the availability of funding sources, hazard events and specific asset risks. Our market risk exposure is expected to be limited to risks that arise in the normal course of business, as we do not engage in speculative, non-operating transactions, nor do we use financial instruments or derivative instruments for trading purposes.

Interest Rate Fluctuation Risk

Our primary exposure to market risk is interest rate sensitivity, which is affected by changes in the general level of U.S. interest rates, particularly because of our cash equivalents and debt security investments. Our investments are made through our commercial and investment banks and, by policy, we limit the amount of risk by investing primarily in money market funds, United States Treasury obligations, and high quality corporate bonds. Additionally, we primarily invest in short-term securities. Because of the short-term nature of the majority of our financial instruments in our investment portfolio, an immediate change in market interest rates of 100 basis points would not have a material impact on the fair market value of our cash and cash equivalents or on our financial position or results of operations.

Foreign Currency Fluctuation Risk

We are subject to foreign currency exchange risk from the translation of the financial statements of our foreign subsidiaries, whose financial condition and results of operations are reported in their local currencies and then translated into U.S. dollars at the applicable currency exchange rate for inclusion in our consolidated financial statements. Foreign currency translation adjustments were \$(0.38) million and \$(1.45) million for the years ended December 31, 2023 and 2022, respectively. Additionally, we have contracted with and may continue to contract with foreign vendors.

Commodity Pricing Risk

Our CarbonSmart products differ from other bio-ethanol (and related derivative products) because they are made from a unique feedstock (recycled carbon emissions) which differs from first-generation biofuels which are generally made from food sources. As a result, there is not an active trading market for our CarbonSmart fuels, and we are not directly impacted by changes in commodity prices. Additionally, we do not engage in hedging or other derivative transactions related to commodity prices.

Demand for our CarbonSmart products is indirectly impacted by commodity prices for fossil fuel and first generation bio-fuel prices. As prices drop for fossil and first-generation bio fuels, demand for our more-expensive recycled CarbonSmart products may decrease. Demand for our CarbonSmart products is also generally increased by new or additional environmental regulations, and decreased by loosened or reduced regulation.

Credit Risk

We are subject to credit risk due to concentration of our receivables with a limited number of significant customers. If a customer defaults or if any of our contracts are cancelled by the customer in accordance with their terms, and we are unable to renew or replace these contracts, our gross margin and cash flows may be adversely affected.

Equity Price Risk

We have in the past, and may in the future, seek to acquire additional funding by sale of common stock and other equity. The price of our common stock has been volatile in the past and may also be volatile in the future. As a result, there is a risk that we may not be able to sell our common stock at an acceptable price should the need for new equity funding arise.

Inflation Fluctuation Risk

Inflation generally affects us by increasing our cost of labor, laboratory supplies, consumables and equipment. We believe that inflation had a material effect on our business, more specifically on our costs of revenues as discussed in the sections results of operations for the twelve months ended months ended December 31, 2023 of our management's discussion and analysis of our financial condition and results of operations.

Item 8. Financial Statements and Supplementary Data

LanzaTech Global, Inc.

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Report of Independent Registered Public Accounting Firm

To the shareholders and the Board of Directors of LanzaTech Global, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of LanzaTech Global, Inc. and subsidiaries (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of operations and comprehensive loss, the consolidated statement of cash flows, and the consolidated statements of changes in redeemable convertible preferred stock and shareholders' equity (deficit), for each of the two years in the period ended December 31, 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 29, 2024, expressed an adverse opinion on the Company's internal control over financial reporting because of material weaknesses.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current-period audit of the financial statements that were communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Revenue Recognition – Identification and evaluation of relevant terms and conditions in new or amended contracts with customers and application to such contracts of Accounting Standards Codification (ASC) Topic 606 – Revenue From Contracts With Customers (ASC 606) - Refer to Notes 2 and 5 to the financial statements

Description of Critical Audit Matter

The Company earns revenue from the sale of a variety of products and services to its customers including services related to biorefining which includes feasibility studies and basic engineering design of commercial plants, licensing of technologies and sales of biocatalysts. The other two revenue streams are: (1) joint development and contract research activities to develop and optimize novel biocatalysts, related processes and technologies, and (2) supply of chemical building blocks for sustainable products produced using the Company's proprietary technologies (referred to as CarbonSmart).

The terms and conditions of the Company's contracts with its customers vary and assessing the accounting impact of the terms and conditions of each individual contract requires judgment as contracts may contain provisions unique to that arrangement. We identified our assessment of the Company's identification and evaluation of relevant contract terms and

conditions and application of ASC 606 to new or amended contracts with customers as a critical audit matter because it required significant audit effort and auditor judgment.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's conclusions on the identification and evaluation of relevant contract terms and conditions and the appropriate application of ASC 606 to new or amended contracts with customers included the following, among others:

- We obtained new or amended contracts with customers and performed the following procedures, among others:
 - Inspected the terms and conditions contained in the contract and supporting documents and, where necessary, confirmed the terms of the contract directly with the customer.
 - For certain new or amended contracts, assessed the Company's application of ASC 606 by:
 - Evaluating the Company's identification of the performance obligation or obligations in the contract.
 - Evaluating the Company's conclusions regarding the timing of recognizing revenue in accordance with ASC 606.

Accounting for the Forward Purchase Agreement (FPA) Put Option - Refer to Notes 2 and 9 to the financial statements

Description of Critical Audit Matter

On February 3, 2023, the Company entered into an FPA with Atalaya Capital Management LP ("ACM"). The FPA Put Option, which includes both the In-substance Written Put Option and the Variable Maturity Consideration, is recorded as a derivative liability measured at fair value in the consolidated balance sheet. The Company's evaluation of the appropriate accounting model to apply to the FPA Put Option required significant judgment.

We determined our audit of the Company's evaluation of the appropriate accounting model to apply to the FPA Put Option was a critical audit matter because it involved a high degree of auditor subjectivity and required significant audit effort, including the need to involve professionals in our firm with expertise in accounting for complex financial instruments.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the accounting for the FPA Put Option included the following, among others:

- With the assistance of professionals in our firm having expertise in accounting for complex financial instruments, we assessed the reasonableness of the Company's conclusions as to the appropriate accounting for the FPA Put Option in accordance with accounting principles generally accepted in the United States by:
 - Evaluating the Company's identification of relevant terms and conditions of the FPA.
 - Evaluating the Company's application of available accounting guidance to the FPA Put Option.
- We evaluated the accuracy and completeness of the disclosures related to the accounting for the FPA Put Option in the financial statements.

Brookfield SAFE Liability – Conversion to Equity Assumption– Refer to Notes 2 and 7 to the financial statements

Description of Critical Audit Matter

On October 2, 2022, the Company entered into a Simple Agreement for Future Equity (the "Brookfield SAFE Agreement") and a framework agreement (the "Brookfield Framework Agreement") with BGTF LT Aggregator LP ("Brookfield"). Pursuant to the Brookfield SAFE Agreement, the Company received \$50 million (the "Initial Purchase Amount") which is repayable in cash, plus interest of 8% per annum, on the fifth anniversary of the Brookfield Safe Agreement. The Company accounts for the Brookfield SAFE liability at fair value which was \$25.2 million as of December 31, 2023.

Pursuant to the Brookfield Framework Agreement, the Company agreed to present Brookfield, on an exclusive basis, the opportunity to provide equity financing for carbon capture and transformation projects in the Company's development pipeline once those projects meet certain defined investment criteria ("Qualified Projects").

A key input into the valuation of the Brookfield SAFE liability is the assumption regarding the portion of the Initial Purchase Amount that will be converted to equity (and the corresponding portion of accrued interest that will be forgiven) as a result of presentation of Qualified Projects to Brookfield. The valuation of the Brookfield SAFE liability is highly sensitive to such assumption and selection of such assumption is subjective and requires a high degree of judgment by management of the Company.

We identified the valuation of the Brookfield SAFE Liability as a critical audit matter because its value is highly sensitive to changes in the assumption regarding the portion of the Initial Purchase Amount that will be converted to equity (and the corresponding portion of accrued interest that will be forgiven). Evaluating this assumption required a high degree of auditor judgment and significant audit effort to evaluate the sufficiency of audit evidence relating to the Company's estimate.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the valuation of the Brookfield SAFE liability included the following, among others:

- We inspected the Brookfield Framework Agreement and obtained an understanding of its key terms, including the investment criteria that need to be met for a project to be considered a Qualifying Project.
- We inspected the Company's project development pipeline to assess the nature and quantity of projects that could be developed into Qualifying Projects.
- We made selections of projects from the project development pipeline and made inquiries of project managers to understand the status of the project relative to meeting the investment criteria and evaluated the reasonableness of the Company's assessment of the probability the selected project will become a Qualifying Project prior to the fifth anniversary of the Brookfield SAFE Agreement.
- We performed a lookback analysis on the status of the projects included in the project development pipeline to evaluate for management bias in developing its assumption.

/s/ Deloitte & Touche LLP

Chicago, IL
February 29, 2024

We have served as the Company's auditor since 2021.

Report of Independent Registered Public Accounting Firm on Internal Control over Financial Reporting

To the shareholders and the Board of Directors of LanzaTech Global, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of LanzaTech Global, Inc. and subsidiaries (the “Company”) as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, because of the effect of the material weaknesses identified below on the achievement of the objectives of the control criteria, the Company has not maintained effective internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2023, of the Company and our report dated February 29, 2024, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Company’s management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management’s Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Material Weaknesses

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company’s annual or interim financial statements will not be prevented or detected on a timely basis. The following material weaknesses have been identified and included in management’s assessment:

- The Company has not effectively designed and implemented internal controls related to accounting for complex transactions and estimates requiring significant judgment.
- The Company’s controls over revenue recognition were not designed and operating at the appropriate level of precision to address the complexity inherent in their revenue cycle.

These material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the consolidated financial statements as of and for the year ended December 31, 2023, of the Company, and this report does not affect our report on such financial statements.

/s/ Deloitte & Touche LLP

Chicago, IL

February 29, 2024

LANZATECH GLOBAL, INC.
CONSOLIDATED BALANCE SHEETS

	As of	
	December 31, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	\$ 75,585	\$ 83,045
Held-to-maturity investment securities	45,159	—
Trade and other receivables, net of allowance	11,157	11,695
Contract assets	28,238	18,000
Other current assets	12,561	11,157
Total current assets	172,700	123,897
Property, plant and equipment, net	22,823	19,689
Right-of-use assets	18,309	6,969
Equity method investment	7,066	10,561
Equity security investment	14,990	14,990
Other non-current assets	5,736	750
Total assets	\$ 241,624	\$ 176,856
Liabilities, Contingently Redeemable Preferred Stock, and Shareholders' Deficit		
Current liabilities:		
Accounts payable	\$ 4,060	\$ 7,455
Other accrued liabilities	7,316	4,502
AM SAFE liability	—	28,986
Warrants	7,614	4,108
Contract liabilities	3,198	3,101
Accrued salaries and wages	5,468	7,031
Current lease liabilities	126	798
Total current liabilities	27,782	55,981
Non-current lease liabilities	19,816	6,615
Non-current contract liabilities	8,233	10,760
Fixed Maturity Consideration	7,228	—
FPA Put Option liability	37,523	—
Brookfield SAFE liability	25,150	50,000
Other long-term liabilities	1,421	1,591
Total liabilities	127,153	124,947
Contingently Redeemable Preferred Stock		
Redeemable convertible preferred stock, \$0.0001 par value; 20,000,000 and 130,133,670 shares authorized, — and 129,148,393 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively	—	480,631
Shareholders' Deficit		
Common stock, \$0.0001 par value; 400,000,000 and 158,918,093 shares authorized, 196,642,451 and 10,422,051 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively	19	1
Additional paid-in capital	943,960	24,782
Accumulated other comprehensive income	2,364	2,740
Accumulated deficit	(831,872)	(456,245)
Total shareholders' equity (deficit)	\$ 114,471	\$ (428,722)
Total liabilities, contingently redeemable preferred stock, and shareholders' equity	\$ 241,624	\$ 176,856

See the accompanying Notes to the Consolidated Financial Statements.

LANZATECH GLOBAL, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE LOSS

	Year Ended December 31,	
	2023	2022
Revenue:		
Revenue from contracts with customers and grants	\$ 45,953	\$ 27,798
Revenue from sales of CarbonSmart products	5,337	4,000
Revenue from collaborative arrangements	5,529	2,575
Revenue from related party transactions	5,812	2,970
Total revenue.....	62,631	37,343
Cost and operating expenses:		
Cost of revenue from contracts with customers and grants (exclusive of depreciation shown below)	(37,653)	(22,912)
Cost of revenue from sales of CarbonSmart products (exclusive of depreciation shown below)	(4,889)	(3,648)
Cost of revenue from collaborative arrangements (exclusive of depreciation shown below).....	(2,265)	(1,250)
Cost of revenue from related party transactions (exclusive of depreciation shown below).....	(172)	(477)
Research and development expense	(68,142)	(53,191)
Depreciation expense	(5,452)	(4,660)
Selling, general and administrative expense.....	(50,438)	(26,804)
Total cost and operating expenses	(169,011)	(112,942)
Loss from operations	(106,380)	(75,599)
Other income (expense):		
Interest income, net	4,572	8
Other expense, net.....	(29,388)	(2,757)
Total other expense, net.....	(24,816)	(2,749)
Loss before income taxes	(131,196)	(78,348)
Income tax expense	—	—
(Loss) gain from equity method investees, net	(2,902)	1,992
Net loss.....	\$ (134,098)	\$ (76,356)
Other comprehensive loss:		
Foreign currency translation adjustments	(376)	(1,449)
Comprehensive loss.....	\$ (134,474)	\$ (77,805)
Unpaid cumulative dividends on preferred stock	(4,117)	(38,672)
Net loss allocated to common shareholders.....	\$ (138,215)	\$ (115,028)
Net loss per common share - basic and diluted.....	\$ (0.79)	\$ (12.37)
Weighted-average number of common shares outstanding - basic and diluted.....	176,023,219	9,302,080

See the accompanying Notes to the Consolidated Financial Statements.

LANZATECH GLOBAL, INC.

**CONSOLIDATED STATEMENTS OF CHANGES IN REDEEMABLE CONVERTIBLE PREFERRED STOCK
AND SHAREHOLDERS' EQUITY/DEFICIT**

	Redeemable Convertible Preferred Stock		Common Stock Outstanding		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Shareholders' Equity / (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2022	29,521,810	\$ 480,631	2,382,358	\$ —	\$ 24,783	\$ (456,245)	\$ 2,740	\$ (428,722)
Retroactive application of recapitalization	99,626,583	—	8,039,693	1	(1)	—	—	—
Adjusted balance, beginning of period	129,148,393	480,631	10,422,051	1	24,782	(456,245)	2,740	(428,722)
Stock-based compensation expense	—	—	—	—	14,957	—	—	14,957
RSA vesting.....	—	—	2,535,825	—	—	—	—	—
Repurchase of equity instruments	—	—	(771,141)	—	(7,650)	—	—	(7,650)
Net loss	—	—	—	—	—	(134,098)	—	(134,098)
Issuance of common stock upon exercise of options	—	—	1,661,698	—	2,550	—	—	2,550
Exercise of a warrant, Series C and D Preferred Stock	594,309	5,890	—	—	—	—	—	—
In-kind payment of preferred dividend	—	241,529	—	—	—	(241,529)	—	(241,529)
Conversion of preferred stock into common stock.....	(129,742,702)	(728,050)	153,895,644	15	728,035	—	—	728,050
Recapitalization, net of transaction expenses (Note 3)	—	—	28,898,374	3	236,970	—	—	236,973
Forward Purchase Agreement prepayment	—	—	—	—	(60,547)	—	—	(60,547)
Reclassification of warrants to equity	—	—	—	—	4,863	—	—	4,863
Foreign currency translation	—	—	—	—	—	—	(376)	(376)
Balance as of December 31, 2023	—	\$ —	196,642,451	\$ 19	\$ 943,960	\$ (831,872)	\$ 2,364	\$ 114,471

	Redeemable Convertible Preferred Stock		Common Stock Outstanding		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Income	Total Shareholders' Equity / (Deficit)
	Shares	Amount	Shares	Amount				
Balance as of December 31, 2021	29,521,810	\$ 480,631	2,106,934	\$ —	\$ 21,711	\$ (379,889)	\$ 3,261	\$ (354,917)
Retroactive application of recapitalization	99,626,583	—	7,110,226	1	(1)	—	—	—
Adjusted balance, beginning of period	129,148,393	480,631	9,217,160	1	21,710	(379,889)	3,261	(354,917)
Share-based compensation expense	—	—	—	—	2,527	—	—	2,527
Repurchase of equity instruments	—	—	—	—	(649)	—	—	(649)
Net loss	—	—	—	—	—	(76,356)	—	(76,356)
Issuance of common stock upon exercise of options	—	—	1,204,891	—	1,194	—	—	1,194
Transfer from foreign currency translation to investment	—	—	—	—	—	—	928	928
Foreign currency translation	—	—	—	—	—	—	(1,449)	(1,449)
Balance as of December 31, 2022	129,148,393	\$ 480,631	10,422,051	\$ 1	\$ 24,782	\$ (456,245)	\$ 2,740	\$ (428,722)

See the accompanying Notes to the Consolidated Financial Statements.

LANZATECH GLOBAL, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,	
	2023	2022
Cash Flows From Operating Activities:		
Net loss	\$ (134,098)	\$ (76,356)
Adjustments to reconcile net loss to net cash used in operating activities:		
Share-based compensation expense	15,199	2,527
(Gain) loss on change in fair value of SAFE and warrant liabilities	(14,471)	1,949
Loss on change in fair value of the FPA Put Option and the Fixed Maturity Consideration liabilities	44,300	—
Provision for losses on trade and other receivables	700	—
Depreciation of property, plant and equipment	5,452	4,660
Amortization of discount on debt security investment	(1,301)	—
Non-cash lease expense	1,526	1,825
Non-cash recognition of licensing revenue	(1,805)	(2,160)
Loss (gain) from equity method investees, net	2,902	(1,992)
Gain from disposal of property, plant and equipment	—	(49)
Net foreign exchange loss	182	668
Changes in operating assets and liabilities:		
Accounts receivable, net	104	(8,817)
Contract assets	(10,049)	(6,246)
Accrued interest on debt investment	(266)	—
Other assets	(2,658)	(5,127)
Accounts payable and accrued salaries and wages	(4,991)	8,243
Contract liabilities	95	(488)
Operating lease liabilities	(337)	(2,028)
Other liabilities	2,220	(1,312)
Net cash used in operating activities	\$ (97,296)	\$ (84,703)
Cash Flows From Investing Activities:		
Purchase of property, plant and equipment	(8,553)	(10,735)
Proceeds from disposal of property, plant and equipment	—	49
Purchase of debt securities	(93,858)	—
Proceeds from maturity of debt securities	50,000	—
Purchase of additional interest in equity method investment	(288)	—
Origination of related party loan	(5,212)	—
Net cash used in investing activities	\$ (57,911)	\$ (10,686)
Cash Flows From Financing Activities:		
Proceeds from issue of equity instruments of the Company	—	1,194
Proceeds from the Business Combination and PIPE, net of transaction expenses (Note 3)	213,381	—
Forward Purchase Agreement prepayment	(60,096)	—
Proceeds from exercise of options	2,550	—
Proceeds from issue of SAFE and warrant instruments	—	50,000
Repurchase of equity instruments of the Company	(7,650)	(649)
Net cash provided by financing activities	\$ 148,185	\$ 50,545
Net decrease in cash, cash equivalents and restricted cash	(7,022)	(44,844)
Cash, cash equivalents and restricted cash at beginning of period	83,710	128,732
Effects of currency translation on cash, cash equivalents and restricted cash	(404)	(178)
Cash, cash equivalents and restricted cash at end of period	\$ 76,284	\$ 83,710
Supplemental disclosure of non-cash investing and financing activities:		
Acquisition of property, plant and equipment under accounts payable	279	246
Receipt of common shares as payment for option exercises	—	1,944
Right-of-use asset additions	12,866	4,108
Reclassification of capitalized costs related to the business combination to equity	1,514	—
Cashless conversion of warrants on preferred shares	5,890	—
Recognition of public and private warrant liabilities in the Business Combination	4,624	—
Reclassification of AM SAFE warrant to equity	1,800	—
Conversion of AM SAFE liability into common stock	29,730	—
Conversion of Legacy LanzaTech NZ, Inc. preferred stock and in-kind dividend into common stock	722,160	—
Reclassification of Shortfall warrant to equity	3,063	—

See the accompanying Notes to the Consolidated Financial Statements.

LANZATECH GLOBAL, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — Description of the Business

LanzaTech Global, Inc., formerly known as AMCI Acquisition Corp. II (“AMCI”) prior to February 8, 2023 (the “Closing Date”) was incorporated as a Delaware corporation on January 28, 2021.

On March 8, 2022, LanzaTech NZ, Inc. (“Legacy LanzaTech”) entered into an Agreement and Plan of Merger (the “Merger Agreement”) with AMCI and AMCI Merger Sub, Inc. a Delaware corporation and a wholly owned subsidiary of AMCI (“Merger Sub”). On February 8, 2023, Legacy LanzaTech completed its business combination with AMCI by which the Merger Sub merged with and into Legacy LanzaTech, with Legacy LanzaTech continuing as the surviving corporation and as a wholly owned subsidiary of AMCI (the “Business Combination”). The reporting entity is LanzaTech Global, Inc. and its subsidiaries (collectively referred to herein as “the Company”, “LanzaTech”, “we”, “us”, “our”). For more information on the Business Combination, see *Note 3 - Reverse Recapitalization*.

The Company is headquartered in Skokie, Illinois. The Company 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. The Company’s customers leverage its proven proprietary gas fermentation technology platform to convert certain feedstock, including waste carbon gases, into sustainable fuels and chemicals such as ethanol. The Company performs related services such as feasibility studies, engineering services, and research and development (“R&D”) in biotechnology for commercial and government entities. The Company also purchases low carbon chemicals produced at customer facilities employing the Company’s technology and sells it under the brand name CarbonSmart. We have also been developing the capabilities to produce single cell protein as a primary product from our gas fermentation platform.

As of December 31, 2023, licensees of the Company’s technology operate four commercial-scale waste-to-gas ethanol plants in China, one plant in India, and one plant in Belgium with others currently in development in various countries, compared to three commercial scale waste-to-gas ethanol plants in China as of December 31, 2022.

As a result of the Business Combination, the Company’s common stock trades under the ticker symbol “LNZA” and its Public Warrants trade under the ticker symbol “LNZAW” on the Nasdaq Stock Market. Prior to the consummation of the Business Combination, the Company’s common shares were listed on Nasdaq Stock Market under the symbol “AMCI” and the Public Warrants were listed on the Nasdaq Stock Market under the symbol “AMCI-W”.

Unless otherwise indicated, amounts in these financial statements are presented in thousands, except for share and per share amounts.

Note 2 — Summary of Significant Accounting Policies

Basis of Presentation and Principles of Consolidation

The consolidated financial statements were prepared in accordance with accounting principles generally accepted in the United States of America (“US GAAP”) and the rules and regulations of the Securities and Exchange Commission (“SEC”). The consolidated financial statements include the accounts of LanzaTech Global, Inc. and its wholly-owned consolidated subsidiaries. All intercompany transactions and balances have been eliminated in consolidation.

Following the consummation of the Business Combination LanzaTech was a “smaller reporting company” or “SRC” as defined in Item 10(f)(1) of Regulation S-K. Smaller reporting companies may take advantage of certain reduced disclosure obligations, including, among other things, providing only two years of audited financial statements. The market value of LanzaTech’s common stock that was held by non-affiliates (i.e. public float) exceeded \$700 million as of the last business day of the Company’s 2023 second fiscal quarter (the measurement date). As a result, LanzaTech no longer qualified as a SRC as of the measurement date. LanzaTech has elected to continue using the scaled disclosures permitted for SRCs in this annual report, and will begin providing non-scaled larger company disclosures in the Form 10-Q as of and for the period ended March 31, 2024.

The Business Combination is accounted for as a reverse recapitalization as Legacy LanzaTech was determined to be the accounting acquirer under Accounting Standards Codification (“ASC”) 805, *Business Combinations* (“ASC 805”) based on the evaluation of the following facts and circumstances:

- Legacy LanzaTech stockholders have the largest portion of voting rights (85.3% at the closing of the Business Combination) in the Company;
- Legacy LanzaTech's existing senior management team comprise senior management of the Company;
- The operations of the Company primarily represent operations of Legacy LanzaTech; and
- In comparison with AMCI, Legacy LanzaTech has significantly more revenue and total assets.

For more information on the Business Combination, see *Note 3 - Reverse Recapitalization*.

The Company has reclassified its warrants on preferred shares, for \$2,119 as of December 31, 2022, from Other accrued liabilities to Warrants on the consolidated balance sheet to conform with current period presentation.

Revision of previously issued financial statements

The Forward Purchase Agreement prepayment is presented as a cash outflow from financing activities within the consolidated statement of cash flows for the year ended December 31, 2023. In the Company's quarterly reports for the year-to-date periods ended March 31, 2023, June 30, 2023, and September 30, 2023, it was classified as a cash outflow from investing activities. During Q4 2023, the company identified the error and updated the presentation in the annual financial statements. The Company will revise this presentation in the 2023 comparative periods presented in its quarterly reports for the year-to-date periods ended March 31, 2024, June 30, 2024, and September 30, 2024 filed for the quarters. The Company has determined the incorrect classification was not material to the respective quarterly reports.

Variable Interest Entity ("VIE")

The Company makes judgments in determining whether an entity is a VIE and, if so, whether it is the primary beneficiary of the VIE and is thus required to consolidate the entity. A VIE is a legal entity that has a total equity investment that is insufficient to finance its activities without additional subordinated financial support or whose equity investors lack the characteristics of a controlling financial interest. The Company's variable interest arises from contractual, ownership or other monetary interests in the entity, which changes with fluctuations in the fair value of the entity's net assets. A VIE is consolidated by its primary beneficiary, the party that has both the power to direct the activities that most significantly impact the VIE's economic performance, and the obligation to absorb losses or the right to receive benefits of the VIE that could potentially be significant to the VIE. The Company consolidates a VIE when the Company is deemed to be the primary beneficiary. The Company assesses whether or not the Company is the primary beneficiary of a VIE on an ongoing basis. If the Company is not deemed to be the primary beneficiary in a VIE, the Company accounts for the investment or other variable interests in a VIE in accordance with applicable US GAAP.

The Company holds interests in certain VIEs for which it has been determined the Company is not the primary beneficiary. The Company's variable interests primarily relate to entities in which the Company has a non-controlling equity interest. Although these financial arrangements resulted in holding variable interests in these entities, they do not empower the Company to direct the activities of the VIEs that most significantly impact the VIEs' economic performance. The Company's interests in the VIEs are, therefore, accounted for under the equity method of accounting or at fair value (including, when applicable, the practicability exception to fair value under ASC 321-10-35). Refer to *Note 6 - Investments*, for further information. The Company is exposed to the VIEs' losses and other impairment losses up to the carrying value of each investment and any amounts receivable from the VIE, less amounts payable. Refer to *Note 15 - Related Party Transactions*, for further details on the transactions with VIEs.

Going Concern

The accompanying consolidated financial statements of the Company have been prepared in accordance with US GAAP and assuming the Company will continue as a going concern. The going concern basis of presentation assumes that the Company will continue in operation one year after the date these financial statements are issued and will be able to realize its assets and discharge its liabilities and commitments in the normal course of business. The Company had cash and cash equivalents of \$75,585, short and long-term held-to-maturity debt investments of \$45,159 and an accumulated deficit of \$(831,872) as of December 31, 2023 and cash outflows from operations of \$(97,296) and a net loss of \$(134,098) for the twelve months ended December 31, 2023. As a result of the Business Combination described in Note 1 closing on February 8, 2023, the Company received \$153,285, which represents the proceeds from the Business Combination received net of (1) transaction expenses, (2) the PIPE investment and (3) the amount paid to ACM ARRT H LLC ("ACM") and Vellar Opportunity Fund SPV LLC - Series 10 ("Vellar") in relation to the Forward Purchase Agreement (see below).

The Company has historically funded its operations through debt financing and issuances of equity securities. Based on the Company's financial position as of the date the consolidated financial statements were issued, the Company projects that it will be able to cover its liquidity needs for the next twelve months.

Use of Estimates

The preparation of financial statements in conformity with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the consolidated financial statements, and the reported amounts of revenues and expenses during the reporting period. Significant estimates include fair value of equity awards granted to both employees and non-employees, valuation of common stock prior to the close of the Business Combination, revenue recognized over time, AM SAFE and Brookfield SAFE obligations, AM SAFE warrants, the Forward Purchase Agreement and the Private Placement Warrants.

The Company uses the percentage of completion for the input method to recognize revenue over time for certain contracts with customers. Under the input method, the Company exercises judgment and estimation when selecting the most indicative measure of such performance.

Most of our arrangements provide fixed consideration, however, when there are variable consideration elements, the Company estimates the transaction price and whether revenue should be constrained. Significant estimates and judgments are also used when a material right is provided to the customer. In these instances, the Company estimates the stand-alone selling price and apportions the total transaction price to this material right. Refer to the Revenue Recognition section in *Note 2 - Summary of Significant Accounting Policies* hereunder.

Changes in facts and circumstances or additional information may result in revised estimates, and actual results may differ from these estimates.

Segment Information

The Company operates as one operating segment. Operating segments are defined as components of an enterprise for which separate financial information is evaluated regularly by the chief operating decision maker ("CODM"), in deciding how to allocate resources and assess performance.

While the Company offers a variety of services and operates in multiple countries, the Company's business operates in one operating segment because most of the Company's service offerings are delivered and supported on a global basis, most of the Company's service offerings are deployed in a similar way, and the Company's CODM evaluates the Company's financial information and resources and assesses the performance of these resources on a consolidated basis. There are no segment managers who are held accountable by the CODM, or anyone else, for operations, operating results, and planning for components below the consolidated level. Accordingly, the Company has determined that it has a single reportable and operating segment. See *Note 5 - Revenues*, for disaggregation of the Company's revenues by customer location and contract type.

Foreign Currencies

The Company's reporting currency is the U.S. Dollar. The Company has certain foreign subsidiaries where the functional currency is the local currency. All of the assets and liabilities of these subsidiaries are translated to U.S. dollars at the exchange rate in effect at the balance sheet date, income and expense accounts are translated at average rates for the period, and shareholders' equity accounts are translated at historical rates. The effects of translating financial statements of foreign operations into the Company's reporting currency are recognized in other comprehensive income.

The Company also has foreign subsidiaries that have a functional currency of the U.S. dollar. Purchases and sales of assets and income and expense items denominated in foreign currencies are remeasured into U.S. dollar amounts on the respective dates of such transactions. Net realized and unrealized foreign currency gains or losses relating to the differences between these recorded amounts and the U.S. dollar equivalent actually received or paid are included within other expense, net in the consolidated statements of operations and comprehensive loss.

Cash and Cash Equivalents

The Company considers all highly liquid investments with an original maturity of three months or less at the time of purchase to be cash equivalents. As of December 31, 2023 and December 31, 2022, the Company had \$75,585 and \$83,045 of cash and cash equivalents, respectively.

Restricted Cash

The Company is required to maintain a cash deposit with a bank which consists of collateral on certain travel and expense programs maintained by the bank. The following represents a reconciliation of Cash and cash equivalents in the consolidated balance sheets to total cash, cash equivalents and restricted cash in the consolidated statements of cash flows as of December 31, 2023 and December 31, 2022.

	As of	
	December 31, 2023	December 31, 2022
Cash and cash equivalents	\$ 75,585	\$ 83,045
Restricted cash (presented within Other current assets)	699	665
Cash, cash equivalents and restricted cash	<u>\$ 76,284</u>	<u>\$ 83,710</u>

Trade and Other Receivables

Receivables are reported net of allowances for doubtful accounts. The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of customers to make required payments. The Company estimates the allowance for doubtful accounts based on a variety of factors including the length of time receivables are past due, the financial health of customers, unusual macroeconomic conditions, and historical experience. As of December 31, 2023 and December 31, 2022, the Company recognized an allowance for doubtful accounts of \$1,751 and \$1,051, respectively.

Other Current Assets

Other current assets consist of prepaid expenses, materials and supplies, inventory and other assets. Material and supplies consist of spare parts and consumables used for research and research equipment and is stated at the weighted average cost. Inventory consists of CarbonSmart products and biocatalysts to be sold to biorefining customers.

Property, Plant and Equipment, net

Property, plant and equipment are stated at cost and include improvements that significantly increase capacities or extend the useful lives of existing plant and equipment. Depreciation is calculated using the straight-line method over the estimated useful life of the assets. Useful lives range from three to five years for instruments and equipment, three to five years for office equipment and furniture and software, five years for vehicles and, for leasehold improvements, the shorter of the life of the improvement or the remaining term of the lease.

The Company reviews the remaining useful life of its assets on a regular basis to determine whether changes have taken place that would suggest that a change to depreciation policies is warranted.

Upon retirement or disposal of property, plant and equipment, the cost and related accumulated depreciation are removed from the account, and the resulting gains or losses, if any, are recorded in the consolidated statements of operations and comprehensive loss. Net gains or losses related to asset dispositions are recognized in earnings in the period in which dispositions occur. Routine maintenance, repairs and replacements are expensed as incurred.

Leases

The Company determines if an arrangement is a lease at inception. Lease agreements under which the Company is a lessee are evaluated to classify the lease as a finance or operating lease. Operating lease assets and liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term. Lease assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. As most leases do not provide an implicit interest rate, the Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments.

Leases with an initial term of 12 months or less are not recorded on the Company's consolidated balance sheets. The Company recognizes lease expense for these leases on a straight-line basis over the lease term. The Company accounts for lease components and non-lease components as a single lease component.

Impairment of Long-Lived Assets

The Company performs a recoverability assessment of each of its long-lived assets whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Indicators may include, but are not limited to, adverse changes in the regulatory environment in a jurisdiction where the Company operates, a decision to discontinue the development of a long-lived asset, early termination of a significant customer contract, or the introduction of newer technology.

When performing a recoverability assessment, the Company measures whether the estimated future undiscounted net cash flows expected to be generated by the asset exceeds its carrying value. In the event that an asset does not meet the recoverability test, the carrying value of the asset will be adjusted to fair value resulting in an impairment charge.

Management develops the assumptions used in the recoverability assessment based on active contracts as well as information received from third-party industry sources. The Company did not record an impairment during the years ended December 31, 2023 and 2022.

Equity Method Investments

Investments in entities over which the Company has significant influence, but not control, are accounted for using the equity method of accounting. Gain or loss from equity method investees, net, represents the Company's proportionate share of net income or loss of its equity method investees and any gains or losses resulting from transactions in the investee's equity.

Our equity method investment is assessed for impairment whenever changes in the facts and circumstances indicate a loss in value may have occurred. When a loss is deemed to have occurred and is other than temporary, the carrying value of the equity method investment is written down to fair value. In evaluating whether a loss is other than temporary, the Company considers the length of time for which the conditions have existed and its intent and ability to hold the investment.

Equity Security Investments

Investments in entities over which the Company has neither significant influence, nor control, are accounted for as equity security investments. For investments where the fair value is not readily determinable, the Company will account for its investment using the alternative measurement principals as permitted under Accounting Standards Codification ("ASC") 321, *Investments — Equity Securities*.

Subsequently, under the alternative measurement method, the Company will adjust the carrying value for observable changes in price and will reassess whether its investment continues to qualify for such method. Additionally, the Company will perform a qualitative assessment and recognize an impairment if there are sufficient indicators that the fair value of the investment is less than its carrying value. The changes in value and impairment charges (if any), are recorded in Other expense, net in the consolidated statements of operations and comprehensive loss.

ArcelorMittal Simple Agreement for Future Equity ("AM SAFE")

In December 2021, the Company issued a SAFE that allowed an investor to participate in future equity financings through a share-settled redemption of the amount invested (such notional being the "invested amount"). The Company determined that the AM SAFE was not legal form debt (i.e., no creditors' rights). The AM SAFE includes a provision allowing for cash redemption upon the occurrence of a change of control, the occurrence of which is outside the control of the Company. Therefore, the AM SAFE was classified as mark-to-market liability pursuant to ASC 480, *Distinguishing Liability from Equity* ("ASC 480") as of December 31, 2022. On the Closing Date of the Business Combination, the AM SAFE converted into 3,000,000 shares of common stock. The AM SAFE was adjusted to its fair value on the Closing Date prior to settlement.

Brookfield SAFE

On October 2, 2022, the Company entered into a SAFE with Brookfield (the "Brookfield SAFE"). Under the Brookfield SAFE, the Company agreed to issue to Brookfield the right to certain shares of its capital stock, in exchange for the payment of \$50,000 (the "Initial Purchase Amount"). The Brookfield SAFE is legal form debt. Management has elected to apply the Fair Value Option ("FVO") under ASC 825, *Financial Instruments*. As the Brookfield SAFE is accounted for under the FVO, the Brookfield SAFE is classified as mark-to-market liability.

Investment securities

The Company classifies investment securities according to their purpose and holding period. All investment securities are debt securities that have been classified as held-to-maturity (“HTM”) because the Company has both the ability and intent to hold the securities to maturity.

HTM debt securities are comprised of U.S. Treasury bills, U.S. Treasury notes, Yankee bonds, and corporate debt. HTM debt securities are carried at amortized cost, which is original cost net of periodic principal repayments and amortization of premiums and accretion of discounts. Accrued interest receivable is recorded within trade and other receivables, net of allowance on the consolidated balance sheets. Amortization of premiums and accretion of discounts are computed using the contractual level-yield method (contractual interest method), adjusted for actual prepayments. The contractual interest method recognizes the income effects of premiums and discounts over the contractual life of the securities based on the actual behavior of the underlying assets, including adjustments for actual prepayment activities, and reflects the contractual terms of the securities without regard to changes in estimated prepayments based on assumptions about future borrower behavior.

Held-to-maturity securities are evaluated individually on a quarterly basis for expected credit losses. If applicable, an allowance for credit losses is recorded with a corresponding credit loss expense (or reversal of credit loss expense). The allowance for credit losses excludes uncollectible accrued interest receivable, which is measured separately.

Warrants

The Company accounts for warrants as either equity-classified or liability-classified instruments based on an assessment of the warrant’s specific terms and applicable authoritative guidance in ASC 480, *Distinguishing Liabilities from Equity* (“ASC 480”) and ASC 815-40, *Derivatives and Hedging—Contracts in Entity’s Own Equity* (“ASC 815-40”). The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and whether the warrants meet all of the requirements for equity classification under ASC 815-40, including whether the warrants are indexed to the Company’s own common stock, among other conditions for equity classification.

For issued or modified warrants that meet all of the criteria for equity classification, the warrants are required to be recorded at fair value as a component of additional paid-in capital at the time of issuance. For issued or modified warrants that do not meet all the criteria for equity classification, the warrants are required to be recorded at their initial fair value on the date of issuance and adjusted to the current fair value at each balance sheet date thereafter. Changes in the estimated fair value of the warrants are recognized as a non-cash gain or loss in Other expense, net on the consolidated statements of operations and comprehensive loss (see *Note 8 - Warrants*).

Forward Purchase Agreement

On February 3, 2023, the Company entered into a Forward Purchase Agreement (“FPA”) with ACM. On the same date, ACM partially assigned its rights under the FPA to Vellar. ACM and Vellar are together referred to as the “Purchasers”. Pursuant to the Forward Purchase Agreement, the Purchasers obtained 5,916,514 common shares (“Recycled Shares”) on the open market for \$10.16 per share (“Redemption Price”), and such purchase price of \$60,096 was funded by the use of AMCI trust account proceeds as a partial prepayment (“Prepayment Amount”) for the Forward Purchase Agreement redemption 3 years from the date of the Business Combination (“Maturity Date”). The Maturity Date may be accelerated, at the Purchasers discretion, if the Company share price trades below \$3.00 per share for any 50 trading days during a 60 day consecutive trading-day period or the Company is delisted. On any date following the Business Combination, the Purchasers also have the option to early terminate the arrangement in whole or in part by providing optional early termination notice to the Company (the “Optional Early Termination”). For those shares early terminated (the “Terminated Shares”), the Purchasers will owe the Company an amount equal to the Terminated Shares times the Redemption Price, which may be reduced in the case of certain dilutive events (“Reset Price”).

At the Maturity Date, the Company is obligated to pay the Purchasers an amount equal to the product of (1) 7,500,000 less (b) the number of Terminated Shares multiplied by (2) \$2.00 (the “Maturity Consideration”). In addition to the Maturity Consideration, on the Maturity Date, the Company shall pay to the Purchasers an amount equal to the product of (x) 500,000 and (y) the Redemption Price, totaling \$5,079 (the “Share Consideration”). If the Purchasers were to utilize their Optional Early Termination to terminate the FPA early in its entirety, neither the Maturity Consideration nor the Share Consideration would be due to the Purchasers.

The Purchasers' Optional Early Termination economically results in the prepaid forward contract being akin to a written put option with the Purchaser's right to sell all or a portion of the 5,916,514 common shares to the Company. The Company is entitled over the 36-month maturity period to either a return of the prepayment or the underlying shares, which the Purchasers will determine at their sole discretion.

The FPA consists of three freestanding financial instruments which are accounted for as follows:

1) The total prepayment of \$60,547 ("Prepayment Amount"), which is accounted for as a reduction to equity to reflect the substance of the overall arrangement as a net repurchase of the Recycled Shares and sale of shares to the Purchasers pursuant to a subscription agreement.

2) The "FPA Put Option" which includes both the in-substance written put option and the portion of the Maturity Consideration in excess of the Minimum Maturity Consideration (the "Variable Maturity Consideration"). The FPA Put Option is a derivative instrument the Company has recorded as a liability and measured at fair value. The initial fair value of the FPA Put Option and subsequent changes in fair value of the FPA Put Option are recorded within Other expense, net on the consolidated statements of operations and comprehensive loss.

3) The "Fixed Maturity Consideration," which includes the minimum portion of the Maturity Consideration (the "Minimum Maturity Consideration"), calculated as 7,500,000 less 5,916,513 multiplied by \$2.00 or \$3,167, and the Share Consideration. Both the Minimum Maturity Consideration and the Share Consideration are considered to be free-standing debt instruments and as both will be paid on the same terms and at the same time, these are accounted for together. The Company has elected to measure these using the FVO under ASC 825, Financial Instruments ("ASC 825"). The Fixed Maturity Consideration is recorded as a long-term liability on the consolidated balance sheets. The initial fair value of the Fixed Maturity Consideration and subsequent changes in fair value of the Fixed Maturity Consideration are recorded within Other expense, net on the consolidated statements of operations and comprehensive loss.

Revenue Recognition

The Company recognizes revenue from exchange transactions in accordance with ASC 606, *Revenue from Contracts with Customers* ("ASC 606"). The Company primarily earns revenue from services related to biorefining (formerly known as carbon capture and transformation) which includes feasibility studies and basic engineering design of commercial plants, licensing of technologies and sales of biocatalysts. The other two revenue streams are: (1) joint development and contract research activities to develop and optimize novel biocatalysts, related processes and technologies, and (2) supply of chemical building blocks for sustainable products produced using the Company's proprietary technologies (referred to as CarbonSmart).

Revenue is measured based on the consideration specified in a contract with a customer. The Company records taxes collected from customers and remitted to governmental authorities on a net basis. The Company's payment terms are between 30-60 days and can vary by customer type and products offered. Management has evaluated the terms of the Company's arrangements and determined that they do not contain significant financing components.

Biorefining

The Company provides feasibility studies and basic design and engineering services used for detailed design, procurement, and construction of commercial plants that utilize the Company's technologies, along with the sale of microbes and media. The services provided are recognized as a performance obligation satisfied over time. Revenue is recognized using the cost-to-cost input method for certain engineering services, or the percentage of completion method as performance obligations are satisfied. Revenue for the sale of microbes and media is at a point in time, depending on when control transfers to the customer.

The Company licenses intellectual property to generate recurring revenue, in the case of running royalties, or one-time revenue, in the case of fixed consideration royalties, when its customers deploy the Company's technology in their biorefining plants. When licenses are considered to be distinct performance obligations, the recognition of revenue is dependent on the terms of the contract, which may include fixed consideration or royalties based on sales or usage, in which case the revenue is recognized when the subsequent sale or usage occurs or when the performance obligation to which some or all of the sales or usage-based royalty is allocated has been satisfied, whichever is later.

Grants received to perform engineering services, including cost reimbursement agreements, are assessed to determine if the agreement should be accounted for as an exchange transaction or a contribution. An agreement is accounted for as a contribution if the resource provider does not receive commensurate value in return for the assets transferred. Contributions are recognized as grant revenue as the qualifying costs related to the grant have been incurred.

Joint Development and Contract Research

The Company performs R&D services related to novel technologies and development of biocatalysts for commercial applications, mainly to produce fuels and chemicals. The Company engages in two main types of R&D services – joint development agreements, and contract research, including projects with the U.S. Department of Energy and other US or foreign government agencies. Such services are recognized as a performance obligation satisfied over time. Revenue is recognized based on milestone completion, when payments are contingent upon the achievement of such milestones, or based on percentage-completion method when enforceable rights to payment exist. When no milestones or phases are clearly defined, management has determined that the cost incurred, input method, is an appropriate measure of progress towards complete satisfaction of the performance obligations under ASC 606, and estimates its variable consideration under the expected value method.

Revenue is not recognized in advance of customer acceptance of a milestone when such acceptance is contractually required. Payments for R&D services with no contractual payments are not due from customers until a technical report is submitted; therefore, a contract asset is recognized at milestone completion but prior to the submission of a technical report. The contract asset represents the Company's right to consideration for the services performed at milestone completion. Occasionally, customers provide payments in advance of the Company providing services which creates a contract liability for the Company. The contract liability represents the Company's obligation to provide services to a customer.

CarbonSmart

The Company purchases chemical building blocks from the customers who have deployed our proprietary technologies in their biorefining plants and sells them as CarbonSmart products. Revenue is recognized at a point in time when control transfers to our end customer, which varies depending on the shipping terms. The Company acts as the principal in such transactions and accordingly, recognizes revenue and cost of revenues on a gross basis. Amounts received for sales of CarbonSmart products are classified as Revenue from sales of CarbonSmart products in the consolidated statements of operations and comprehensive loss.

Collaboration Arrangements

The Company has certain partnership agreements that are within the scope of ASC 808, *Collaborative Arrangements*, which provides guidance on the presentation and disclosure of collaborative arrangements. Generally, the classification of the transaction under the collaborative arrangements is determined based on the nature of the contractual terms of the arrangement, along with the nature of the operations of the participants. The Company's collaborative agreements generally include a provision of R&D services related to novel technologies and biocatalysts. Amounts received for these services are classified as Revenue from collaborative arrangements in the consolidated statements of operations and comprehensive loss. The Company's R&D services are a major part of the Company's ongoing operations and therefore ASC 606 is applied to recognize revenue.

Cost of Revenues

The Company's R&D, engineering, and other direct costs of services and goods related to revenue agreements with customers, related parties, and collaborative partners represent cost of revenue. Costs include both internal and third-party fixed and variable costs and include materials, supplies, labor, and fringe benefits.

Research and Development

We incur costs associated with various R&D activities and expense them as incurred.

Fair Value of Financial Instruments

Fair value is defined as the exchange price that would be received for an asset or an exit price paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs. The fair value hierarchy defines a three-level valuation hierarchy for disclosure of fair value measurements as follows:

Level 1 — Valuations based on quoted prices in active markets for identical assets or liabilities that an entity has the ability to access;

Level 2 — Valuations based on quoted prices for similar assets or liabilities, quoted prices for identical assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable data for substantially the full term of the assets or liabilities; and

Level 3 — Valuations based on inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The categorization of a financial instrument within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement.

The fair value of the Company’s assets and liabilities, which qualify as financial instruments under ASC 820, *Fair Value Measurement*, approximates the carrying amounts represented in the accompanying consolidated balance sheets, primarily due to their short-term nature, except for the warrant liability.

Concentration of Credit Risk and Other Risks and Uncertainties

Revenue generated from the Company’s contracting entities outside of the United States for the twelve months ended December 31, 2023 and 2022 was approximately 73% and 61%, respectively.

As of December 31, 2023 and December 31, 2022, approximately 49% and 35%, respectively, of trade accounts receivable and unbilled accounts receivable were due from contracting entities located outside the United States. As of December 31, 2023 and December 31, 2022, the value of property, plant, and equipment outside the United States was immaterial.

The Company’s revenue by geographic region based on the contracting entities’ location is presented in *Note 5 - Revenues*.

Our largest contracting entities represent 10% or greater of revenue and were as follows for the twelve months ended months ended December 31, 2023 and 2022:

	<u>Year Ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
Customer A	38 %	10 %
Customer B	6 %	22 %

Stock-Based Compensation

In exchange for certain employee and director services, compensation is given in the form of equity-based awards. The Company accounts for equity-based compensation in accordance with ASC 718, *Compensation – Stock Compensation*. Accordingly, equity-classified awards are recorded based on the grant date fair value and expensed over the requisite service period for the respective award. Liability-classified awards are remeasured at the end of each reporting period and expensed based on the percentage of requisite service that has been rendered.

The Company’s equity-based awards include stock option awards, restricted stock units, stock-appreciation rights (“SARs”) and restricted stock issued by the Company, which vest based on either time and/or the achievement of certain market or performance conditions. The Company records forfeitures as they occur. Compensation expense is recognized in the Company’s consolidated statements of operations and comprehensive loss, primarily within research and development expenses. For awards with only service conditions that have a graded vesting schedule, the Company recognizes compensation cost on a straight-line basis over the requisite service period for the entire award. For awards with market or performance conditions that have a graded vesting schedule, the Company recognizes compensation cost on a straight-line basis over the requisite service period for each tranche of the award. Compensation expense resulting from performance awards is recognized over the requisite service period when it is probable that the performance condition will be met. The recognized compensation expense for performance awards is adjusted based on an estimate of awards ultimately expected to vest.

The Company estimates the fair value of service and performance-based options and SARs using a Black-Scholes option pricing model that uses assumptions including expected volatility, expected term, and the expected risk-free rate of return. The Company estimates the fair value of market-based RSUs using the Monte Carlo simulation model that uses assumptions including expected volatility, and the derived service period. The Company uses peer data to determine expected volatility and expected term. The Company estimates the fair value of RSUs based on the closing market price of its common stock on the date of measurement.

Benefit Plans

The Company sponsors a 401(k) defined contribution retirement plan for the benefit of its employees, substantially all of whom are eligible to participate after meeting minimum qualifying requirements. Contributions to the plan are at the discretion of the Company. For the years ended December 31, 2023 and 2022, the Company contributed \$1,253 and \$987, respectively, to the plan, which contributions are included within Cost of revenue, Research and development expense and Selling, general and administrative expense in the consolidated statements of operations and comprehensive loss.

Income Taxes

The Company follows the asset and liability method of accounting for income taxes under ASC 740, *Income Taxes*. Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to temporary differences between the financial statements carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that included the enactment date. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

Deferred income tax assets are evaluated to determine if valuation allowances are required or should be adjusted. Valuation allowances are established based on a more likely than not standard. The ability to realize deferred tax assets depends on the Company's ability to generate sufficient taxable income within the carry back or carryforward periods provided for in the tax law for each tax jurisdiction. The Company considers the various possible sources of taxable income when assessing the realization of its deferred tax assets. The valuation allowances recorded against deferred tax assets generated by taxable losses in certain jurisdictions will affect the provision for income taxes until the valuation allowances are released. The Company's provision for income taxes will include no tax benefit for losses incurred and no tax expense with respect to income generated in these jurisdictions until the respective valuation allowance is eliminated.

The Company records uncertain tax positions on the basis of a two-step process whereby it is determined whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position, and for those tax positions that meet the more likely than not criteria, the largest amount of tax benefit that is greater than 50% likely to be realized upon ultimate settlement with the related tax authority is recognized. The Company recognizes accrued interest and penalties related to unrecognized tax benefits in income tax expense.

Related Party Transactions

The Company follows ASC 850-10, *Related Party Transactions*, for the identification of related parties and disclosure of related party transactions.

Pursuant to ASC 850-10-20, related parties include: a) affiliates of the Company; b) entities for which investments in their equity securities would be required, absent the election of the fair value option under the Fair Value Option Subsection of Section 825-10-15, to be accounted for by the equity method by the investing entity; c) trusts for the benefit of employees, such as pension and profit-sharing trusts that are managed by or under the trusteeship of management; d) principal owners of the Company; e) management of the Company; f) other parties with which the Company may deal if one party controls or can significantly influence the management or operating policies of the other to an extent that one of the transacting parties might be prevented from fully pursuing its own separate interests; and g) other parties that can significantly influence the management or operating policies of the transacting parties or that have an ownership interest in one of the transacting parties and can significantly influence the other to an extent that one or more of the transacting parties might be prevented from fully pursuing its own separate interests. Refer to *Note 6 - Investments*, and *Note 15 - Related Party Transactions*, for further information.

Net Loss Per Share

Basic net loss per share is computed by dividing net loss attributable to participating stock by the weighted average number of shares of participating stock outstanding during the period.

Diluted net loss per share reflects potential dilution and is computed by dividing net loss attributable to participating stock by the weighted average number of shares of participating stock outstanding during the period. The dilutive effect of outstanding awards, if any, is reflected in diluted earnings per share by application of the treasury stock method or if-converted method, as applicable. Refer to *Note 4 - Net Loss Per Share*, for additional information.

Shareholders' Equity

The securities of the Company are represented by common shares, par value \$0.0001 per share. Each common share is entitled to one vote. With respect to payment of dividends and distribution of assets upon liquidation, dissolution or winding up of the Company, whether voluntary or involuntary, all common shares shall participate pro rata in such payment whenever funds are legally available and when declared by the Board of Directors of the Company, subject to the prior rights of holders of all classes of stock outstanding.

Recently Issued Accounting Pronouncements

Accounting Standards Update ("ASU") 2023-06, Disclosure Improvements: Codification Amendments in Response to the SEC's Disclosure Update and Simplification Initiative issued in August 2018

In October 2023, the FASB issued ASU 2023-06, which amends U.S. GAAP to reflect updates and simplifications to certain disclosure requirements referred to FASB by the SEC. The targeted amendments incorporate 14 of the 27 disclosures referred by the SEC into Codification. Some of the amendments represent clarifications to, or technical corrections of, the current requirements. Each amendment in ASU 2023-06 will only become effective if the SEC removes the related disclosure or presentation requirement from its existing regulation by June 30, 2027. Because the company is subject to the SEC's disclosure requirements, the effective date for each amendment will be the date on which the SEC's removal of that related disclosure from regulation S-X or Regulation S-K becomes effective, and will be applied prospectively, with early adoption prohibited. No amendments were effective at December 31, 2023. The Company is still currently evaluating the impact of the adoption of the new standard but does not expect a significant impact on the consolidated financial statements.

ASU 2023-07, Improvements to Reportable Segment Disclosures ("ASU 2023-07")

In November 2023, the FASB issued ASU No. 2023-07, which improves reportable segment disclosure requirements, primarily through enhanced disclosures about significant segment expenses. In addition, the amendments enhance interim disclosure requirements, clarify circumstances in which an entity can disclose multiple segment measures of profit or loss, provide new segment disclosure requirements for entities with a single reportable segment, and contain other disclosure requirements. The purpose of the amendments is to enable investors to better understand an entity's overall performance and assess potential future cash flows. This ASU is effective for public companies with annual periods beginning after December 15, 2023, and interim periods within annual period beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the impact that the adoption of the ASU will have on the consolidated financial statements.

ASU 2023-09, Improvements to Income Tax Disclosures ("ASU 2023-09")

In December 2023, the FASB issued ASU No. 2023-09, which requires disaggregated information about a reporting entity's effective tax rate reconciliation as well as information on income taxes paid. The standard is intended to help investors better assess how a company's operations and related tax risks and tax planning and operational opportunities affect the company's tax rate and prospects for future cash flows. ASU 2023-09 improves disclosures by requiring (1) consistent categories and greater disaggregation of information in the rate reconciliation and (2) income taxes paid disaggregated by jurisdiction. It also includes certain other amendments to improve the effectiveness of income tax disclosures. This ASU is effective for public companies with annual periods beginning after December 15, 2024, with early adoption permitted. The Company is currently evaluating the impact of the adoption of the standard in the income tax footnote disclosures.

Note 3 — Reverse Recapitalization

On February 8, 2023, Legacy LanzaTech and AMCI consummated the merger contemplated by the Merger Agreement (see *Note 1 - Description of the Business*).

Immediately following the Business Combination, there were 196,222,737 shares of common stock outstanding with a par value of \$0.0001. Additionally, there were outstanding warrants to purchase 12,574,200 shares of common stock.

As discussed in *Note 2 - Summary of Significant Accounting Policies*, the Business Combination was accounted for as a reverse recapitalization in accordance with US GAAP. Under this method, while AMCI was the legal acquirer, it has been treated as the "acquired" company for financial reporting purposes. Accordingly, the Business Combination was treated as the equivalent of pre-combination Legacy LanzaTech issuing stock for the net assets of AMCI, accompanied by a recapitalization. The net assets of AMCI were stated at historical cost, with no goodwill or other intangible assets recorded. Operations prior to the Business Combination are those of pre-combination Legacy LanzaTech. Reported shares and earnings per share available to holders of the Company's common stock and preferred shares, prior to the Business Combination, have been retroactively restated to reflect the exchange ratio established in the Business Combination (approximately one pre-combination Legacy LanzaTech share to 4.3747 of the Company's shares).

Upon closing of the Business Combination, the shareholders of AMCI, including AMCI founders, were issued 10,398,374 shares of common stock of the Company. In connection with the closing, holders of 8,351,626 shares of common stock of AMCI were redeemed at a price per share of approximately \$10.16. In connection with the Closing, 18,500,000 shares of common stock of the Company were issued to PIPE investors. 15,500,000 of those shares were issued at a price per share of \$10.00. The remaining 3,000,000 shares were issued upon conversion of the AM SAFE liability. The Company incurred \$7,223 in transaction costs relating to the Business Combination and recorded those costs against Additional paid-in capital in the consolidated balance sheets.

The number of shares of Class A common stock issued and outstanding immediately following the consummation of the Business Combination and PIPE financing were:

	<u>Shares</u>	<u>Percentage</u>
Legacy LanzaTech shares	167,324,363	85.3 %
Public stockholders.....	10,398,374	5.3 %
PIPE shares.....	18,500,000	9.4 %
Total	<u>196,222,737</u>	<u>100 %</u>

The following table reconciles the elements of the Business Combination and PIPE financing to the consolidated statements of cash flows:

	<u>Recapitalization</u>
Cash - AMCI trust account ¹	\$ 64,090
Cash - PIPE financing.....	155,000
Less: Transaction costs allocated to equity	(5,709)
Effect of the Business Combination and PIPE financing	<u>\$ 213,381</u>

(1) The cash from the AMCI trust account is net of redemptions and the payment of pre-combination AMCI expenses.

The following table reconciles the elements of the Business Combination and PIPE financing to the change in Additional paid-in capital on the consolidated statement of changes in redeemable preferred stock and shareholders' equity/deficit:

	<u>Recapitalization</u>
Cash - AMCI trust account	\$ 64,090
Public Warrants and Private Placement Warrants recorded on the Closing Date.....	(4,624)
Cash - PIPE financing.....	155,000
Conversion of the AM SAFE.....	29,730
Transaction costs allocated to equity	(7,223)
	<u>\$ 236,973</u>
Less: par value of shares held by PIPE investors and public stockholders.....	(3)
Total additional paid-in capital from recapitalization	<u>\$ 236,970</u>

Note 4 — Net Loss Per Share

Basic net loss per share is computed by dividing net loss by the weighted-average number of shares of common stock of the Company outstanding during the period. Diluted net loss per share is computed by giving effect to all common stock equivalents of the Company, including equity-classified share-based compensation, the Brookfield SAFE, warrants, and contingently redeemable preferred stock, to the extent dilutive. Earnings per share calculation for all periods prior to the Business Combination have been retrospectively restated to the equivalent number of shares reflecting the exchange ratio established in the Merger Agreement of 4.3747.

The following table presents the calculation of basic and diluted net loss per share for the Company's common stock (in thousands, except shares and per share amounts):

	Year Ended December 31,	
	2023	2022
Numerator:		
Net loss for basic and diluted earnings per common share	\$ (134,098)	\$ (76,356)
Unpaid cumulative dividends on preferred stock.....	(4,117)	(38,672)
Net loss allocated to common shareholders	\$ (138,215)	(115,028)
Denominator:		
Weighted-average shares used in calculating net loss per share, basic and diluted.....	176,023,219	9,302,080
Net loss per common share, basic and diluted ⁽¹⁾	\$ (0.79)	\$ (12.37)

(1) In periods in which the Company reports a net loss, all common stock equivalents are excluded from the calculation of diluted weighted average shares outstanding because of their anti-dilutive effect on loss per share.

As of December 31, 2023 and 2022, common stock equivalents not included in the computation of loss per share because their effect would be antidilutive include the following:

	December 31,	
	2023	2022
Redeemable convertible preferred stock (if converted)	—	129,148,393
Options	16,411,978	14,661,253
RSUs.....	7,084,967	—
RSAs.....	—	2,535,825
Brookfield SAFE	5,000,000	—
Warrants.....	16,657,686	985,278
Total	45,154,631	147,330,749

The preferred shares automatically converted into common shares upon the Business Combination at a 1:1 ratio. On February 8, 2023, upon conversion of the preferred shares, the cumulative accrued, declared and unpaid dividends on the preferred shares became payable. The total amount of cumulative accrued, undeclared and unpaid dividends was approximately \$241,529 on the Closing Date. As stipulated by the Merger Agreement, this amount was divided by 10 and resulted in the issuance of an additional 24,152,942 common shares. Prior to the Business Combination, the additional 129,148,393 of common stock equivalents resulting from any such conversion are not included in the computation of diluted net loss per share because doing so would be anti-dilutive.

In connection with the AM SAFE and Brookfield SAFE, see *Note 10 - Fair Value*, the Company could issue additional potential shares of common stock. Shares related to the AM SAFE were issued on the Closing Date. Shares related to the Brookfield SAFE and AM SAFE warrant have not been issued as of December 31, 2023. The AM SAFE warrant became exercisable for a fixed number of shares as of the Closing Date, see *Note 8 - Warrants*. As a result, these common stock equivalents are included in the warrants line item in the potential share table above as of December 31, 2023. The per share issuance price for the Brookfield SAFE upon closing of the Business Combination is the liquidity price as defined in the Brookfield SAFE agreement. As a result of the Business Combination, the Brookfield SAFE became convertible into a maximum number of shares, which is included in the table above as of December 31, 2023. None of these common stock equivalents are included in the computation of diluted net loss per share until actually issued because doing so would be anti-dilutive.

Note 5 — Revenues

Disaggregated Revenue

The following table presents disaggregated revenue in the following categories (in thousands):

	Year Ended December 31,	
	2023	2022
Contract Types:		
Licensing	\$ 3,449	\$ 2,160
Engineering and other services.....	39,196	19,061
Biorefining revenue	\$ 42,645	\$ 21,221
Joint development agreements	8,416	6,021
Contract research.....	6,233	6,101
Joint development and contract research revenue	\$ 14,649	\$ 12,122
CarbonSmart product	5,337	4,000
Total Revenue	\$ 62,631	\$ 37,343

The following table presents revenue from partners in collaborative arrangements and from grant contributions which are included in the table above as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Revenue from partners in collaborative agreements included in the Joint development agreements above	5,529	2,575
Revenue from grant contributions included in the Engineering and other services above.....	24,146	6,026

The following table presents disaggregation of the Company's revenues by customer location for the twelve months ended months ended December 31, 2023 and 2022 (in thousands):

	Year Ended December 31,	
	2023	2022
North America	\$ 17,618	\$ 17,149
Europe, Middle East, Africa (EMEA).....	37,447	11,500
Asia.....	3,570	5,752
Australia	3,996	2,942
Total Revenue	\$ 62,631	\$ 37,343

Contract balances

The following table provides changes in contract assets and liabilities (in thousands):

	Current Contract Assets	Current Contract Liabilities	Non-current Contract Liabilities
Balance as of December 31, 2022	\$ 18,000	\$ 3,101	\$ 10,760
Additions to unbilled accounts receivable	61,453	—	—
Increases due to cash received	—	10,058	—
Unbilled accounts receivable recognized in trade receivables	(51,405)	—	—
Decrease on revaluation on currency	190	—	160
Reclassification from long-term to short-term	—	2,687	(2,687)
Reclassification to revenue as a result of performance obligations satisfied.....	—	(12,648)	—
Balance as of December 31, 2023	<u>\$ 28,238</u>	<u>\$ 3,198</u>	<u>\$ 8,233</u>

The increase in contract assets was mostly due to unbilled accounts receivable resulting from revenue recorded under contracts with customers and grants where the Company performed engineering and other services, and primarily relates to contracts with government entities. The decrease in contract liabilities was primarily due to the recognition of revenue during the period related to advance payments previously received by the Company for engineering and other services contracts with customers. As of December 31, 2023 and December 31, 2022 the Company had \$11,157 and \$11,695, respectively, of billed accounts receivable, net of allowance.

The contract liability balance comprises unconditional payments received from the Company's customers prior to the satisfaction of the related performance obligations. Such amounts are anticipated to be recorded as revenues when services are performed in subsequent periods. The Company expects to recognize the amounts classified as current contract liabilities in revenue within one year or less and those classified as non-current within two to three years.

Remaining performance obligations

Transaction price allocated to the remaining performance obligations represents contracted revenue that has not yet been recognized, which includes unearned revenue that will be recognized as revenue in future periods. Transaction price allocated to remaining performance obligations is influenced by several factors, including the length of the contract term compared to the research term and the existence of customer specific acceptance rights.

Remaining performance obligations consisted of the following (in thousands):

	As of	
	December 31, 2023	December 31, 2022
Current.....	\$ 3,198	\$ 3,101
Non-current.....	8,233	10,760
Total	<u>\$ 11,431</u>	<u>\$ 13,861</u>

Note 6 — Investments

HTM Debt Securities

HTM debt securities are comprised of U.S. Treasury bills and notes, Yankee debt securities, and corporate debt securities. HTM debt securities are classified as short-term or long-term based upon the contractual maturity of the underlying investment.

(in thousands)	December 31, 2023				
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Accrued Interest
Short-term					
US Treasury bills and notes	20,423	6	\$ —	\$ 20,429	\$ 14
Corporate debt securities	21,736	14	(33)	21,717	209
Yankee debt securities	3,000	—	(8)	2,992	43
Total debt securities due within a year	\$ 45,159	\$ 20	\$ (41)	\$ 45,138	\$ 266
Total HTM Debt Securities	45,159	20	(41)	45,138	266

The Company regularly reviews held-to-maturity securities for declines in fair values that are determined to be credit related. As of December 31, 2023, the Company did not have an allowance for credit losses related to held-to-maturity securities.

Equity investments

The Company's equity investments consisted of the following (in thousands):

	As of	
	December 31, 2023	December 31, 2022
Equity Method Investment in LanzaJet	\$ 7,066	\$ 10,561
Equity Security Investment in SGLT	14,990	14,990
Total Investment	\$ 22,056	\$ 25,551

LanzaJet

On May 13, 2020, the Company contributed \$15,000 in intellectual property in exchange for a 37.5% interest ("Original Interest") of LanzaJet, Inc. ("LanzaJet") in connection with an investment agreement ("Investment Agreement"). The Company accounts for the transaction as a revenue transaction with a customer under ASC 606. The licensing and technical support services provided are recognized as a single combined performance obligation satisfied over the expected period of those services, beginning May 2020 through December 2025. During the years ended December 31, 2023 and December 31, 2022, the Company recognized revenue from this arrangement of \$2,249 and \$2,160 respectively, net of intra-entity profit elimination and has associated deferred revenue of \$5,375 and \$8,062, as of December 31, 2023 and December 31, 2022, respectively. Intra-entity profits related to this arrangement are \$437 and \$527 for the years ended December 31, 2023 and 2022, respectively. Intra-entity profits are amortized over a 15-year period through 2034.

Between February 1, 2021 and April 4, 2021, LanzaJet closed two additional rounds of investment which reduced the Company's Original Interest to approximately 23%. In connection with the LanzaJet Note Purchase Agreement as described in *Note 15 - Related Party Transactions*, LanzaJet issued warrants that are exercisable for \$0.01 by the holder when the related funds are drawn by LanzaJet. The warrants held by LanzaTech and other lenders meet the accounting criteria for in-substance common stock at the time the related note commitment is drawn by LanzaJet and the warrants become exercisable. As of December 31, 2023, LanzaTech's ownership was diluted to 23.06% because LanzaTech received proportionally fewer warrants than the other investors. The Company recorded a gain on dilution of \$532. LanzaTech's ownership is subject to further dilution to 22.38% if LanzaJet draws additional funds committed in the LanzaJet Note Purchase Agreement and the remaining warrants are exercisable by the holders. Under the LanzaJet Investment Agreement, certain other LanzaJet shareholders agreed to make an additional cash investment following the achievement of certain development milestones relating to the demonstration facility. If made, these additional investments would fund the development and operation of commercial facilities that would sublicense the relevant fuel production technology from LanzaJet. Upon the closing of each of the first three of these additional investments and no later than the sublicensing of the relevant facility, LanzaTech has a right to receive additional LanzaJet shares of up to 45 million shares in the aggregate for no additional consideration. To date, these shares have not been issued.

The carrying value of our equity method investment in LanzaJet as of December 31, 2023 and December 31, 2022 was approximately \$3,400 and \$3,700 less than our proportionate share of our equity method investees' book values, respectively. The basis differences are largely the result of a difference in the timing of recognition of variable consideration to which we may become entitled in exchange for our contribution of intellectual property to LanzaJet. The variable consideration we may receive will be in the form of additional ownership interests and the majority of the basis difference will reverse in connection with recognition of that variable consideration.

In connection with a sublicense agreement to LanzaJet under our license agreement with Battelle Memorial Institute ("Battelle"), LanzaTech remains responsible for any failure by LanzaJet to pay royalties due to Battelle. The fair value of LanzaTech's obligation under this guarantee was immaterial as of December 31, 2023 and December 31, 2022.

SGLT

On September 28, 2011, the Company contributed RMB 25,800 (approx. \$4,000) in intellectual property in exchange for 30% of the registered capital of Beijing Shougang LanzaTech Technology Co., LTD ("SGLT").

As of December 31, 2022, the Company's interest in SGLT's registered capital is approximately 9.31% as a result of the admittance of new investors during the year. As of September 30, 2022, the Company no longer had significant influence over the operating and financial policies of SGLT due to the significant and sustained decrease in SGLT's technological dependence on LanzaTech. As such, the Company ceased applying the equity method and from October 1, 2022 and forward, the Company accounts for its investment in equity security of SGLT using the alternative measurement principals as permitted under ASC 321, *Investments - Equity Securities*, because SGLT's fair value is not readily determinable. For the years ended December 31, 2023, there was no change in the value of the investment in SGLT.

As of December 31, 2023 and December 31, 2022, there were no impairments of equity investments. During the years ended December 31, 2023 and 2022, the Company received no dividends from equity investments. See *Note 15 - Related Party Transactions*, for information on revenues, accounts receivable, contract assets and purchases and open accounts payable with its equity investments.

The following table presents summarized aggregated financial information of the equity method investments:

	<u>Year Ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
Selected Statement of Operations Information⁽¹⁾:		
Revenues	4,542	40,985
Gross profit	2,526	7,319
Net loss.....	(14,881)	(6,221)
Net loss attributable to the Company	(3,432)	(1,422)
	<u>Year Ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
Selected Balance Sheet Information⁽²⁾:		
Current assets	79,843	72,711
Non-current assets.....	185,720	114,736
Current liabilities.....	44,145	15,534
Non-current liabilities	175,899	114,934

(1) As of September 30, 2022 the Company no longer accounts for the investment in SGLT under the equity method. As such, the 2022 income statement amounts reflect SGLT activity for the nine months ended September 30, 2022 and LanzaJet activity for the year ended December 31, 2022. The 2023 income statement amounts reflect LanzaJet activity for the year ended December 31, 2023.

(2) The balance sheet information reflects LanzaJet as of December 31, 2023 and 2022.

As of December 31, 2023 and 2022, there were no impairments of equity method investees. During 2023 and 2022, the Company received no dividends from equity method investments. See Note 15 - Related Party Transactions, for information on sales, accounts receivable, contract assets and purchases and open accounts payable with equity method investees.

Note 7 — SAFE

AM SAFE

As of December 31, 2022, the AM SAFE had a fair value of \$28,986 and was recorded within AM SAFE liability on the consolidated balance sheets. On the Closing Date of the Business Combination, the AM SAFE converted into 3,000,000 shares of common stock. As of the Closing Date, the AM SAFE had a fair value of \$29,730, which equals the closing price of approximately \$9.91 on the Closing Date, multiplied by the number of shares issued. The AM SAFE was adjusted to its fair value on the Closing Date prior to settlement. As of December 31, 2022, the AM SAFE had a fair value of \$28,986.

Brookfield SAFE

On October 2, 2022, LanzaTech entered into the Brookfield SAFE and received cash proceeds of \$50,000 as the Initial Purchase Amount. In exchange, the Company granted to Brookfield the right to certain shares of the Company's capital stock.

On the fifth anniversary of the Brookfield SAFE, LanzaTech is required to repay in cash the Initial Purchase Amount less any Non-Repayable Amount (the "Remaining Amount"), as well as interest on such Remaining Amount in the high single digits, compounded annually.

For each \$50,000 of aggregate equity funding required for qualifying projects presented to Brookfield in accordance with the Brookfield Framework Agreement (discussed below), the Remaining Amount will be reduced by \$5,000 (such cumulative reductions the "Non-Repayable Amount") and converted into LanzaTech Shares at \$10.00 per share, which is the share price paid by the PIPE investors in the Business Combination. Interest on the corresponding amount will be forgiven. Each project presented must meet certain criteria in order to be considered a qualifying project.

Additionally, Brookfield may, at any time at its option, convert all or a portion of the Initial Purchase Amount less any amount that has already been converted or repaid into shares of LanzaTech capital stock at the same \$10.00 per share price.

The Brookfield SAFE has not yet converted as a qualifying financing has not yet occurred and no qualified project investments have been presented to Brookfield as of December 31, 2023 or 2022. As of December 31, 2023 and 2022, the fair value of the Brookfield SAFE was \$25,150 and \$50,000 respectively and was recorded within Brookfield SAFE liability on the consolidated balance sheets.

Brookfield Framework Agreement

On October 2, 2022, LanzaTech entered into a framework agreement with Brookfield (the "Brookfield Framework Agreement"). Under such agreement, LanzaTech agreed to exclusively offer Brookfield the opportunity to acquire or invest in certain projects to construct commercial production facilities employing carbon capture and transformation technology in the U.S., the European Union, the United Kingdom, Canada or Mexico for which LanzaTech is solely or jointly responsible for obtaining or providing equity financing, subject to certain exceptions. LanzaTech agreed to present Brookfield with projects that over the term of the agreement require equity funding of at least \$500,000 in the aggregate. With respect to projects acquired by Brookfield, LanzaTech is entitled to a percentage of free cash flow generated by such projects determined in accordance with a hurdle-based return waterfall. Brookfield has no obligation under the Brookfield Framework Agreement to invest in any of the projects. There have been no investments in projects as of December 31, 2023 or 2022 .

Note 8 — Warrants

Warrants on preferred shares

In connection with certain loan borrowing agreements and equity raises, the Company had issued warrants to purchase its preferred shares representing 985,278 preferred shares. The warrants were accounted for as liabilities in accordance with ASC 480, and were presented within Warrants on the consolidated balance sheets as of December 31, 2022. The warrant liabilities were measured at fair value at inception and on a recurring basis, with changes in fair value presented within Other expense, net on the consolidated statements of operations and comprehensive loss.

In connection with the closing of the Business Combination, all warrants were exercised on a cashless basis and are no longer outstanding. The warrants were exercised for 594,309 shares of preferred stock, which were converted at the closing of the Business Combination into shares of common stock. The exercise prices of the warrants ranged from \$3.36 to \$4.56 as of the closing of the Business Combination. Immediately before the exercise of these warrants, the associated warrant liability was marked-to-market a final time to \$5,890, which is equal to the number of shares issued multiplied by the share price of \$9.91 on the date of exercise, February 8, 2023.

AM SAFE warrant

The warrant related to the AM SAFE (“AM SAFE warrant”) was accounted for as a liability in accordance with ASC 480 prior to the consummation of the Business Combination and was presented within warrants on the consolidated balance sheet as of December 31, 2022. As a result of the Business Combination and issuance of the PIPE shares, the number of common shares available under the AM SAFE warrant equals 300,000. The exercise price of the AM SAFE warrant is \$10.00 per share as determined on the Closing Date. The AM SAFE warrant expires at the earliest of (a) the fifth anniversary of the Business Combination, (b) the consummation of a dissolution event and (c) a change of control. Due to the AM SAFE warrant becoming exercisable for a fixed number of shares at a fixed exercise price, it no longer meets the criteria for liability accounting under ASC 480 and meets the criteria for equity classification under ASC 815-40. As a result, on the Closing Date, the AM SAFE warrant was marked-to-market a final time to \$1,800 through Other expense, net on the consolidated statements of operations and comprehensive loss and reclassified to Additional paid-in capital on the consolidated balance sheets.

Shortfall Warrants

On March 27, 2023, the Company issued an aggregate of 2,073,486 warrants to ACM and 2,010,000 warrants to Vellar pursuant to the Forward Purchase Agreement (collectively, the “Shortfall Warrants”), as further described in *Note 2 - Summary of Significant Accounting Policies*. Each Shortfall Warrant entitles the registered holder to purchase one share of common stock at a price of \$10.00 per share, subject to adjustment in the event that the Company sells, grants or otherwise issues common stock or common stock equivalents at an effective price less than the then current exercise price of the Shortfall Warrants, at any time commencing on or after March 27, 2023. A holder of a Shortfall Warrant may exercise such warrants on a cashless basis. The Shortfall Warrants expire on the fifth anniversary of their issuance. On the issuance date, the Shortfall Warrants met the definition of a derivative but did not qualify for the exception from derivative accounting under the indexation guidance and therefore met the criteria for liability classification under ASC 815. On May 13, 2023, the Company amended the Shortfall Warrant agreement. Under the amended agreement, the Shortfall Warrants meet the requirements for equity classification under ASC 815-40. Consequently, the Company recorded a gain of \$2,042 as of the date of the amendment to reflect the fair value of \$3,063 at the date of the amendment through Other expense, net on the consolidated statements of operations and comprehensive loss and reclassified the Shortfall Warrants to Additional paid-in capital on the consolidated balance sheets.

Public Warrants and Private Placement Warrants

As part of AMCI’s initial public offering (“IPO”), AMCI issued warrants to third-party investors where each whole warrant entitles the holder to purchase one share of the Company’s common stock at an exercise price of \$11.50 per share (the “Public Warrants”). Simultaneously with the closing of the IPO, AMCI completed the private sale of warrants where each warrant allows the holder to purchase one share of the Company’s common stock at \$11.50 per share. Additionally, prior to the consummation of the Business Combination, AMCI issued warrants for the settlement of a working capital loan. The working capital warrants have the same terms as the private sale of warrants issued at the IPO. Warrants sold in the private sale at the IPO and the warrants issued to convert the working capital loan are collectively referred to as the “Private Placement Warrants”. On the Closing Date and as of December 31, 2023, 7,499,924 Public Warrants and 4,774,276 Private Placement Warrants remained outstanding.

These warrants expire on the fifth anniversary of the Business Combination or earlier upon redemption or liquidation and are exercisable commencing 30 days after the Business Combination, provided that the Company has an effective registration statement under the Securities Act covering the shares of common stock issuable upon exercise of the warrants and a current prospectus relating to them is available (or the Company permits holders to exercise their warrants on a cashless basis under the circumstances specified in the warrant agreement) and registered, qualified or exempt from registration under the securities, or blue sky, laws of the state of residence of the holder.

Once the Public Warrants become exercisable, the Company may redeem the outstanding warrants:

- a. in whole and not in part;
- b. at a price of \$0.01 per warrant;
- c. upon a minimum of 30 days’ prior written notice of redemption to each warrant holder; and
- d. if, and only if, the closing price of the common stock equals or exceeds \$18.00 per share for any 20 trading days within a 30-trading day period ending three trading days before we send the notice of redemption to the warrant holders.

The Company additionally has the ability to redeem the Public Warrants at the option of the Company when the price of common stock exceeds \$10.00 per share at a price of \$0.10 per warrant. In this scenario, warrant holders may choose to exercise their warrants on a cashless basis during the minimum 30-day notice period, and receive common stock in exchange for their warrants at a rate based on fair value of the common stock and the proximity to the expiration date of the warrants.

As long as the Private Placement warrants are held by AMCI Sponsor II LLC (the “Sponsor”) or its permitted transferees, they are not redeemable by LanzaTech. If the Private Placement Warrants are held by holders other than the Sponsor or its permitted transferees, the Private Placement Warrants will be redeemable by LanzaTech in all redemption scenarios and exercisable by the holders on the same basis as the Public Warrants. The Sponsor, or its permitted transferees, has the option to exercise the Private Placement Warrants on a cashless basis.

The Public Warrants and Private Placement Warrants are recognized as derivative liabilities in accordance with ASC 815. Accordingly, the Company recognized the warrant instruments as liabilities at fair value as of the Closing Date, with an offsetting entry to Additional paid-in capital and adjusts the carrying value of the instruments to fair value through Other expense, net on the consolidated statements of operations and comprehensive loss at each reporting period until they are exercised. As of December 31, 2023, the Public Warrants and Private Placement Warrants are presented within Warrants on the consolidated balance sheets.

Note 9 — Forward Purchase Agreement

As discussed in *Note 2 - Summary of Significant Accounting Policies*, the FPA consists of the Prepayment Amount, the FPA Put Option and the Fixed Maturity Consideration. The Prepayment Amount of \$60,547 is presented as a reduction to Additional paid-in capital in our consolidated balance sheets. The value of the FPA Put Option represents the economics of the written put option, inclusive of the Variable Maturity Consideration, and is valued at \$37,523 as of December 31, 2023.

The Fixed Maturity Consideration is valued at \$7,228 as of December 31, 2023. This represents the fair value of the Share Consideration and Fixed Maturity Consideration and is measured in accordance with the FVO.

Expensed transaction costs, representing the stock acquisition fees, in the amount of \$451 are recorded in Other expense, net on the consolidated statements of operations and comprehensive loss.

Note 10 — Fair Value

The following table presents the Company’s fair value hierarchy for its assets and liabilities measured at fair value as of December 31, 2023 and December 31, 2022 (in thousands):

	Fair Value Measurement as of			
	December 31, 2023			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	\$ 28,058	\$ —	\$ —	\$ 28,058
Total assets	\$ 28,058	\$ —	\$ —	\$ 28,058
Liabilities:				
FPA Put Option liability	\$ —	\$ —	\$ 37,523	\$ 37,523
Fixed Maturity Consideration	—	—	7,228	7,228
Brookfield SAFE liability	—	—	25,150	25,150
Private placement warrants	—	—	3,915	3,915
Public warrants	3,699	—	—	3,699
Total liabilities	\$ 3,699	\$ —	\$ 73,816	\$ 77,515

**Fair Value Measurement as of
December 31, 2022**

	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents	\$ 523	\$ —	\$ —	\$ 523
Liabilities:				
Warrants on preferred shares.....	—	—	2,119	2,119
Brookfield SAFE liability	—	—	50,000	50,000
AM SAFE warrant.....	—	—	1,989	1,989
AM SAFE liability.....	—	—	28,986	28,986
Total Liabilities	\$ —	\$ —	\$ 83,094	\$ 83,094

Forward Purchase Agreement

The fair value upon issuance of the FPA (both the FPA Put Option liability and Fixed Maturity Consideration) and the change in fair value from issuance to December 31, 2023, is included in Other expense, net in the consolidated statements of operations and comprehensive loss. The fair value of the FPA was estimated using a Monte-Carlo Simulation in a risk-neutral framework. Specifically, the future stock price is simulated assuming a Geometric Brownian Motion (“GBM”). For each simulated path, the forward purchase value is calculated based on the contractual terms and then discounted back to present. Finally, the value of the forward is calculated as the average present value over all simulated paths. The Fixed Maturity Consideration was also valued as part of this model as the timing of the payment of the Fixed Maturity Consideration may be accelerated if the Maturity Date is accelerated.

The following table represents the weighted average inputs used in calculating the fair value of the prepaid forward contract and the Fixed Maturity Consideration as of December 31, 2023:

	December 31, 2023
Stock price	\$ 5.03
Term (in years).....	2.11
Expected volatility	50.0 %
Risk-free interest rate.....	4.16 %
Expected dividend yield	— %

Warrants on preferred shares

The fair value of the warrants on preferred shares was estimated using a Black-Scholes option pricing model. Since the warrants were exercised on February 8, 2023 (see Note 8 - Warrants, for a description of the valuation on that date), the following table represents the weighted average inputs used in calculating the fair value of the preferred share warrants outstanding as of December 31, 2022:

	December 31, 2022
Stock price	\$ 5.21
Weighted average exercise price.....	\$ 3.96
Term (in years).....	1.1
Expected volatility	73.4 %
Risk-free interest rate.....	4.47 %
Expected dividend yield.....	— %

Shortfall Warrants

The fair value of the Shortfall Warrants was estimated using a Black-Scholes option pricing model. The following table represents the weighted average inputs used in calculating the fair value of the Shortfall Warrants as of May 13, 2023 when the Shortfall Warrant Agreement was amended and the Shortfall Warrants were marked-to-market and reclassified to Additional paid-in capital on the consolidated balance sheets:

	<u>May 13, 2023</u>
Stock price	\$ 3.42
Weighted average exercise price.....	\$ 10.00
Term (in years).....	4.87
Expected volatility	54.0 %
Risk-free interest rate.....	3.46 %
Expected dividend yield	— %

SAFE Liabilities and AM SAFE Warrant

The change in fair value between reporting periods for the Brookfield SAFE liability is included in Other expense, net in the consolidated statements of operations and comprehensive loss for years ended December 31, 2023 and 2022. The change in fair value between December 31, 2022 and the Closing Date for the AM SAFE liability is included in Other expense, net in the consolidated statements of operations and comprehensive loss for the year ended December 31, 2023. See below for further details on the AM SAFE liability and see *Note 8 - Warrants* for further details on the AM SAFE warrant.

The Company's AM SAFE liability (until conversion to shares on the Closing Date), AM SAFE warrant (until conversion to an equity classified warrant on the Closing Date) and Brookfield SAFE liability are mark-to-market liabilities and are classified within Level 3 of the fair value hierarchy as the Company is using a scenario-based approach which allowed the Company to estimate the implied value of the business based on the terms of the SAFE. Significant unobservable inputs included probability and expected term. Probability was based upon the likelihood of the Company closing a transaction with a special purpose acquisition company. The expected term was based on the anticipated time until the SAFE investments would have a conversion event.

As of December 31, 2022, the AM SAFE had a fair value of \$28,986 and was recorded within AM SAFE liability on the consolidated balance sheets. Significant inputs for Level 3 AM SAFE liability fair value measurement at December 31, 2022 are as follows:

	<u>Near Term</u>	<u>Long-Term</u>
Key assumptions:		
Probability weighting.....	61 %	39 %
Time to conversion (in years)	0.1	0.8
Liquidity price	100 %	90 %
Discount rate.....	24.7 %	24.7 %

At conversion to equity classification on February 8, 2023, the AM SAFE warrant was valued using a Black-Scholes option pricing model as the warrant became exercisable for a fixed number of shares at a fixed price as described in *Note 8 - Warrants*. The following table represents the weighted average inputs used in calculating the fair value of the AM SAFE warrants outstanding at conversion to equity on February 8, 2023:

	<u>February 8, 2023</u>
Stock price	\$ 9.91
Term (in years).....	5.00
Expected volatility	70.0 %
Risk-free interest rate.....	3.82 %
Expected dividend yield.....	— %

Significant inputs for Level 3 AM SAFE warrant fair value measurement at December 31, 2022 are as follows (in thousands):

	<u>Near Term</u>	<u>Long-Term</u>
Key assumptions:		
Probability weighting	61 %	39 %
Remaining life (in years)	5.0	5.0
Volatility.....	75 %	75 %
Interest rate	3.99 %	3.99 %
Time to conversion (in years)	0.1	0.8
Risk-free interest rate.....	4.12 %	4.75 %
Dividend yield.....	— %	— %

The Brookfield SAFE is legal form debt that the Company has elected to measure using the FVO under ASC 825. As of December 31, 2023, no part of the Brookfield SAFE has converted to Company common shares as a qualifying financing had not yet occurred and no project investments were presented. There were no cash flows associated with the Brookfield SAFE in the year ended December 31, 2023.

As of its issuance date, the fair value of the Brookfield SAFE was equal to the investment amount of \$50,000 based on the orderly nature of the transaction. The value as of December 31, 2022 remained the same due to the proximity of the valuation date to the issuance date (i.e., less than two months) and the absence of events which would indicate a change in expected payoffs to the investor. As of December 31, 2022 the same expectations about sufficient projects meeting the agreed-upon investment criteria pursuant to the Brookfield Framework Agreement are maintained. As such the Brookfield SAFE's fair value was estimated to be \$50,000, as of December 31, 2022.

As of December 31, 2023, the Company expects to present sufficient projects to Brookfield to result in the Brookfield SAFE being automatically converted into shares. Since the liquidity price is not expected to change during the life of the Brookfield SAFE, the number of shares that Brookfield receives is fixed. Based on this expectation, the value of the Brookfield SAFE is equal to the Brookfield SAFE's as-converted value, which is the initial purchase amount, divided by the liquidity price, times the stock price, resulting in an estimated fair value of \$25,150 recorded on the consolidated balance sheet.

Significant inputs for Level 3 Brookfield SAFE measurement at December 31, 2023 are as follows:

	<u>December 31, 2023</u>
Initial purchase amount.....	\$ 50,000
Liquidity price	\$ 10.00
Stock price	\$ 5.03

Public Warrants and Private Placement Warrants

For the Public Warrants, the Company uses inputs such as actual trade data, quoted market prices from dealers or brokers, and other similar sources to determine the fair value and recognized an increase in the fair value of the liability of approximately \$1,224 on the consolidated statements of operations and comprehensive loss within Other expense, net representing the change in fair value from the Closing Date to December 31, 2023.

The fair value of the Private Placement Warrants was estimated using a Black-Scholes option pricing model. For the year ended December 31, 2023, the Company recognized an increase in the fair value of liabilities of approximately \$1,766 on the consolidated statements of operations and comprehensive loss within Other expense, net representing the change in fair value from the Closing Date to December 31, 2023.

The following table represents the weighted average inputs used in calculating the fair value of the Private Placement Warrants outstanding as of December 31, 2023:

	<u>December 31, 2023</u>
Stock price	\$ 5.03
Exercise price.....	\$ 11.50
Term (in years).....	4.11
Expected volatility	45.0 %
Risk-free interest rate.....	3.92 %
Expected dividend yield.....	— %

The following tables represent reconciliations of the fair value measurements of the assets and liabilities using significant unobservable inputs (Level 3) (in thousands):

	<u>FPA Put Option</u>	<u>Fixed Maturity Consideration</u>	<u>Shortfall Warrants</u>	<u>Warrants on Preferred Shares</u>	<u>AM SAFE liability</u>	<u>AM SAFE warrant</u>	<u>Brookfield SAFE</u>	<u>Private placement warrants</u>
Balance as of January 1, 2023	\$ —	\$ —	\$ —	\$ (2,119)	\$ (28,986)	\$ (1,989)	\$ (50,000)	\$ —
Recognized as a result of the Business Combination	—	—	—	—	—	—	—	(2,148)
(Loss) gain recognized in other expense, net on the consolidated statement of operations and comprehensive loss.....	(37,523)	(7,228)	(3,063)	(3,770)	(744)	189	24,850	(1,766)
Conversion of warrants to preferred shares.....	—	—	—	5,889	—	—	—	—
Conversion of SAFE liability to equity classification	—	—	—	—	29,730	—	—	—
Reclassification of warrant to equity	—	—	3,063	—	—	1,800	—	—
Balance as of December 31, 2023	<u>\$ (37,523)</u>	<u>\$ (7,228)</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (25,150)</u>	<u>\$ (3,914)</u>

	<u>Warrants on Preferred Shares</u>	<u>AM SAFE liability</u>	<u>AM SAFE warrant</u>	<u>Brookfield SAFE</u>
Balance as of January 1, 2022.....	\$ (1,145)	\$ (28,271)	\$ (1,729)	\$ —
Issuance of Brookfield SAFE Liability.....	—	—	—	(50,000)
Gain (loss) recognized in other expense, net on the consolidated statement of operations and comprehensive loss	(974)	(715)	(260)	—
Balance as of December 31, 2022.....	<u>\$ (2,119)</u>	<u>\$ (28,986)</u>	<u>\$ (1,989)</u>	<u>\$ (50,000)</u>

Note 11 — Other Current Assets

As of December 31, 2023 and 2022 other current assets consisted of the following (in thousands):

	As of	
	December 31, 2023	December 31, 2022
Inventory	\$ 1,750	\$ 1,129
Materials and supplies	3,595	3,035
Prepaid assets	3,698	2,833
Other	3,518	4,160
	<u>\$ 12,561</u>	<u>\$ 11,157</u>

Note 12 — Property, Plant, and Equipment, net

The Company's property, plant and equipment, net consisted of the following (in thousands):

	As of	
	December 31, 2023	December 31, 2022
Land	\$ 64	\$ 64
Leasehold improvements	4,837	4,126
Instruments and equipment	40,827	33,093
Vehicles.....	92	85
Office Equipment and furniture	2,103	1,719
Other	900	871
Construction in progress	6,287	6,780
	<u>\$ 55,110</u>	<u>\$ 46,738</u>
Less accumulated depreciation and amortization	<u>\$ 32,287</u>	<u>\$ 27,049</u>
Total property, plant and equipment, net.....	<u>\$ 22,823</u>	<u>\$ 19,689</u>

Depreciation for the years ended December 31, 2023 and December 31, 2022 totaled \$5,452 and \$4,660, respectively.

Note 13 — Income Taxes

The Company is subject to federal and state income taxes in the United States, as well as income taxes in foreign jurisdictions in which it conducts business. The Company does not provide for federal income taxes on the undistributed earnings of its foreign subsidiaries as such earnings are reinvested indefinitely. The Company and its foreign subsidiaries have historically been loss generating entities that have resulted in no excess earnings to consider for repatriation and accordingly there are no deferred income taxes recognized for the years ended December 31, 2023 and 2022.

The Company recorded an income tax expense of \$0 for the twelve months ended December 31, 2023 and 2022, representing an effective tax rate of 0%. The difference between the U.S. federal statutory rate of 21% and the Company's effective tax rate in the twelve months ended December 31, 2023 and 2022 is primarily due to a full valuation allowance related to the Company's U.S. and foreign deferred tax assets. The Company reassesses the need for a valuation allowance on a quarterly basis. If it is determined that a portion or all of the valuation allowance is not required, it will generally be a benefit to the income tax provision in the period such determination is made.

The Company conducts business in multiple jurisdictions within and outside the United States. Consequently, the Company is subject to periodic income tax examinations by domestic and foreign income tax authorities. The Company is subject to audits for tax years 2017 and onward for federal purposes. There are tax years which remain subject to examination in various other state and foreign jurisdictions that are not material to the Company's financial statements.

The components of (loss) income before income taxes and gain from equity method investees, net are as follows (in thousands):

	Year Ended December 31,	
	2023	2022
United States	\$ (134,020)	\$ (73,271)
Foreign	(78)	(3,085)
Total	<u>\$ (134,098)</u>	<u>\$ (76,356)</u>

The Company does not have any current or deferred taxes in either the United States or our foreign operations.

The following table is a reconciliation of income taxes computed at the statutory federal income tax rate (21.0% federal income tax rate in the United States for 2023 and 2022) to the income tax expense (benefit) reflected in the consolidated statement of operations and comprehensive loss (in thousands, except percentages):

	Year Ended December 31,			
	2023		2022	
Income tax (benefit) at the statutory federal income tax rate	\$ (28,145)	21.0 %	\$ (16,035)	21.0 %
Foreign tax rate differential	(15)	—%	(72)	0.1%
State and local taxes	(9,757)	7.3%	(6,961)	9.1%
Share Based Compensation	197	(0.1)%	288	(0.4)%
Nondeductible loss on stock	6,324	(4.7)%	—	—%
Equity method investment	—	—%	(701)	0.9%
Valuation allowance	31,661	(23.6)%	26,286	(34.4)%
Deferred True-Up	—	—%	(2,836)	3.7%
Other	(265)	0.2%	31	—%
Total income tax expense (benefit)	<u>\$ —</u>	<u>— %</u>	<u>\$ —</u>	<u>— %</u>

Deferred Taxes

Significant components of deferred tax assets and liabilities were as follows (in thousands):

	Year Ended December 31,	
	2023	2022
Deferred tax assets:		
Net operating loss and credit carryforwards	134,609	133,537
Stock-based compensation	4,526	2,071
Operating lease liability	6,281	2,473
Accrued bonus	—	1,514
Accrued expenses	—	239
Deferred revenue	148	126
Equity method investment	3,051	2,040
R&D capitalization	26,725	—
Other	1,051	460
	<u>\$ 176,391</u>	<u>\$ 142,460</u>
Valuation allowance	(171,223)	(139,562)
Net deferred tax asset	5,168	2,898
Deferred tax liabilities:		
Operating lease asset	(5,584)	(2,125)
Other	416	(773)
Total deferred tax liabilities	<u>(5,168)</u>	<u>(2,898)</u>
Net deferred income tax assets and liabilities:	<u>\$ —</u>	<u>\$ —</u>

At December 31, 2023 and 2022, the Company had \$395,590 and \$391,759, respectively, of tax losses and credits carried forward subject to shareholder continuity and acceptance in the countries where the Company has tax losses carried forward. R&D tax credits included within these amounts are \$35,147 for both periods, which may be available to offset future income tax liabilities. At December 31, 2023 and 2022, the net operating loss and credit carryforwards are comprised of \$321,743 and \$318,382 in the United States, \$30,011 and \$29,691 in state and local, \$43,805 and \$43,655 in foreign jurisdictions, respectively. At December 31, 2023 and 2022, the Company had net operating loss carryforwards of approximately \$145,090 and \$146,467, respectively, that expire in various years from 2024 through 2038, plus \$215,388 and \$210,145, respectively, for which there is no expiration date.

Section 382 of the Internal Revenue Code imposes an annual limitation on the utilization of net operating loss carryforwards based on a statutory rate of return and the value of the corporation at the time of a “change of ownership” as defined by Section 382. The Company had a change in ownership in November 2014. Therefore, the Company’s ability to utilize its net operating loss carryforwards incurred prior to the 2014 ownership change, will be subject in future periods to annual limitations.

In assessing the realizability of deferred tax assets, the Company assesses whether it is more-likely-than-not that a portion or all of the deferred tax assets will not be realized. The Company considers the scheduled reversal of deferred tax liabilities, tax planning strategies and projected future taxable income in making this assessment. At December 31, 2023 and 2022, a valuation allowance of \$171,223 and \$139,562, respectively, was recorded against certain deferred tax assets based on this assessment. The Company believes it is more-likely-than-not that the tax benefit of the remaining net deferred tax assets will be realized. The amount of net deferred tax assets considered realizable could be increased or reduced in the future if the Company’s assessment of future taxable income or tax planning strategies changes.

The Company and its foreign subsidiaries have historically been loss generating entities that have resulted in no excess earnings to consider for repatriation and accordingly there are no deferred income taxes recognized as of December 31, 2023 and 2022.

At December 31, 2023 and 2022, the Company had no tax liability or benefit related to uncertain tax positions. No interest or penalties related to uncertain taxes have been recognized on the accompanying consolidated statements of operations. Management does not expect a significant change in uncertain tax positions during the twelve months subsequent to December 31, 2023.

The Company conducts business in multiple jurisdictions within and outside the United States. Consequently, the Company is subject to periodic income tax examinations by domestic and foreign income tax authorities. During December 2021, the Internal Revenue Service completed an income tax examination of the Company’s U.S. federal income tax return for the year ended December 31, 2016, which resulted in no impact to the Company’s consolidated financial statements. The Company has no other ongoing tax examinations with domestic or foreign taxing authorities.

During 2021, the Company migrated its country of domicile from New Zealand to Delaware in the United States. On migration, the Company was deemed to have disposed of all its assets and liabilities to a third-party at market value which resulted in taxable income to the Company for New Zealand income tax purposes. The migration to Delaware is classified as a tax-free reorganization for U.S. federal income tax purposes.

The Organization for Economic Co-operation and Development (OECD) has a framework to implement a global minimum corporate tax of 15% for companies with global revenues and profits above certain thresholds (referred to as Pillar 2.0), with certain aspects of Pillar 2.0 effective January 1, 2024 and other aspects effective January 1, 2025. While it is uncertain whether the U.S. will enact legislation to adopt Pillar 2, certain countries in which we operate have adopted legislation, and other countries are in the process of introducing legislation to implement Pillar 2. We do not anticipate Pillar 2.0 to have material impacts on our effective tax rate, financial position or cash flows.

Note 14 — Share-Based Compensation

The Company adopted the LanzaTech 2023 Long-Term Incentive Plan (the “LTIP”) in conjunction with the closing of the Business Combination. The LTIP provides for grants of a variety of awards to employees, directors, and other service providers to the Company, including, but not limited to stock options, stock appreciation rights, restricted stock awards, restricted stock units, performance awards and other stock-based awards or cash incentives. Prior to the effective date of the closing of the Business Combination, the Company granted awards under the LanzaTech NZ Inc. 2013 Stock Plan, the LanzaTech NZ Inc. 2015 Stock Plan, and the LanzaTech NZ, Inc. 2019 Stock Plan, (collectively, the “Prior Stock Plans”).

Equity Classified Awards:

RSUs

Under the LTIP, the Company has granted two types of RSUs: time-based RSUs, and market-based RSUs. Time-based RSUs granted to employees and other service providers (other than directors) are generally subject to a three-year annual pro-rata vesting schedule whereby the awards generally vest in 3 equal tranches on the first, second, and third anniversaries of the vesting commencement date, subject to grantee's continued service through each vesting date. However, vesting will accelerate in certain circumstances (e.g., retirement, death, disability, or a qualified termination in connection with a change in control). Time-based RSUs granted to directors are subject to a one-year vesting schedule and the full award vests on the first anniversary of the vesting commencement date, subject to the director's continued service through the vesting date. However, vesting will accelerate in certain circumstances (e.g., removal in connection with a change in control).

The market-based RSUs have both a time-based and a market-based vesting component. Both components must be met for the award to vest. The market-based RSUs are subject to the same three-year annual pro-rata vesting schedule as the employee time-based RSUs. The market-based vesting component is satisfied if on any date during the period beginning on the 151st date following the vesting commencement date and ending on the fifth anniversary of the vesting commencement date, the average closing price of a share of the Company's common stock, equals or exceeds \$11.50, determined using the closing share price from the 20 trading days preceding such determination date.

The following assumptions were used in the lattice-based option valuation model for market-based RSUs granted during the year ended December 31, 2023. There were no market-based RSUs granted during the year ended December 31, 2022.

	<u>2023</u>
Derived service period in years.....	1.54 - 2.76
Expected volatility	50%
Expected dividends	—
Risk-free rate	3.45% - 4.44%

A summary of the unvested time-based and market-based equity-classified RSUs are presented in the following table:

	<u>Time-based RSUs</u>		<u>Market-based RSUs</u>	
	<u>Shares (in thousands)</u>	<u>Weighted Average Grant Date Fair Value</u>	<u>Shares (in thousands)</u>	<u>Weighted Average Grant Date Fair Value</u>
January 1, 2023	—	—	—	\$ —
Granted	3,185	3.51	3,930	1.69
Vested	(2)	3.45	—	—
Cancelled/forfeited	(28)	3.43	—	—
December 31, 2023	3,155	3.51	3,930	\$ 1.69

The Company recorded compensation expense related to the time-based RSUs of \$3,153 for the year ended December 31, 2023. Unrecognized compensation costs as of December 31, 2023 was \$7,919 and will be recognized over a weighted average of 2.20 years.

The Company recorded compensation expense related to the market-based RSUs of \$3,440 for the year ended December 31, 2023. Unrecognized compensation costs as of December 31, 2023 was 3,198 and will be recognized over a weighted average of 1.57 years.

Stock Options

In accordance with the LTIP and Prior Stock Plans, grantees have also been granted stock options to purchase common shares. The exercise prices of each stock option was no less than the fair market value price of the Company's common shares determined as of the date of grant. The stock options generally vest over the course of two to five years, subject to the service provider's continued service through each vesting date. Upon termination of service, unvested stock options are forfeited in accordance with their terms unless the award agreement provides for accelerated vesting (e.g., due to retirement).

The below tables reflect the stock options granted prior to the Business Combination multiplied by the exchange ratio and the weighted average exercise price divided by the exchange ratio.

The following assumptions were used in the option valuation model for options granted during the year ended December 31, 2023. There were no options granted during the year ended December 31, 2022.

	<u>2023</u>
Expected term in years.....	5.98 - 6.00
Expected volatility	76.70% - 76.80%
Expected dividends.....	—
Risk-free rate	3.45% - 3.60%

Stock option awards outstanding as of December 31, 2023 and changes during the period ended December 31, 2023 were as follows:

	Shares subject to option (thousands)	Weighted average exercise price	Weighted average remaining contractual term (years)	Aggregate intrinsic value (thousands)
Outstanding at January 1, 2023	14,661	\$ 1.48		
Vested and expecting to vest at January 1, 2023.....	14,661	1.48		
Exercisable at January 1, 2023	11,203	\$ 1.44		
Granted	3,556	3.77		
Exercised	(1,659)	1.54		
Cancelled/forfeited.....	(146)	2.08		
Outstanding at December 31, 2023	16,412	\$ 1.96	6.13	\$ 51,601
Vested and expecting to vest at December 31, 2023.....	16,412	1.96	6.13	51,601
Exercisable at December 31, 2023	10,869	\$ 1.49	4.95	\$ 38,691

The Company recorded compensation expense related to the options of \$5,623 and \$2,527 for the years ended December 31, 2023 and 2022. Unrecognized compensation costs as of December 31, 2023 was \$8,321 and will be recognized over a weighted average of 2.07 years.

Restricted Stock Awards (“RSAs”)

Under the Prior Stock Plans, the Company granted RSAs which become eligible to vest upon the satisfaction of a time-based service condition. However, in order to vest, a liquidity event, defined as acquisition, asset transfer, or initial listing, must occur within 10 years from the grant date. Upon a liquidity event, if the participant’s service has not terminated, the entire RSA award vests in full, whether or not previously eligible for vesting. If the participant’s service has terminated and they have satisfied the time-based service condition, the RSAs that are outstanding and eligible for vesting immediately vest in full upon liquidity event. The time-based service requirements of the RSAs have a maximum term of three years from the date of grant.

As of December 31, 2022, there were 2,535,825 outstanding unvested RSAs with a weighted average grant date fair value of \$1.08. The Business Combination constituted a “liquidity event” which caused the vesting of all such outstanding, unvested RSAs. The vesting of the RSAs resulted in compensation expense of \$2,741 for the year ended December 31, 2023, respectively. There was no compensation expense recorded in the comparable periods in 2022, because the Company concluded that the liquidity event performance condition was not probable of being satisfied at the time. In connection with the vesting of these RSAs, certain holders of the RSAs surrendered 771,141 shares in a withhold to cover transaction to fund the payment of applicable tax withholding on their behalf by the Company. This resulted in a total cash payment of \$7,650 by the Company to the Internal Revenue Service for the applicable tax withholding associated with this vesting event.

Liability-Classified Awards

Phantom RSUs

Under a phantom equity sub-plan of the LTIP, certain non-US employees of the Company were provided with Phantom RSUs that can only be settled in cash and are therefore recorded as a liability. The Phantom RSUs have a graded vesting schedule and vest in 3 equal tranches on the first, second, and third anniversaries of the vesting commencement date, subject to the employee meeting the requisite service requirements. Grantees are entitled to receive a cash payment equal to the fair market value of a share multiplied by the number of vested RSUs as of the applicable vesting date.

Phantom SARs

Under a phantom equity sub-plan of the LTIP, certain non-US employees of the company were provided with Phantom SARs that can only be settled in cash and are therefore recorded as a liability. The Phantom SARs have a graded vesting schedule and vest in three equal tranches on the first, second, and third anniversaries of the vesting commencement date, subject to the employee meeting the requisite service requirements. Phantom SARs expire 10 years after the grant date and entitle the grantee to receive a cash payment upon exercise of the award equal to the excess of the fair market value of a share on the date of exercise over the exercise price multiplied by the number of SARs exercised.

Note 15 — Related Party Transactions

As of December 31, 2023 and December 31, 2022, the Company has an equity ownership in LanzaJet and SGLT (see *Note 6 - Investments* for further details). The table below summarizes amounts related to transactions with these related parties (in thousands):

	As of	
	December 31, 2023	December 31, 2022
Accounts receivable.....	\$ 2,190	\$ 1,821
Contract Assets	659	—
Notes receivable.....	5,436	—
Accounts payable.....	582	3,195

The following table presents revenue from related parties per disaggregated revenue categories:

	Year Ended December 31,	
	2023	2022
Revenue from related parties, included within Licensing.....	\$ 3,449	\$ 2,160
Revenue from related parties, included within Engineering and other services	2,363	810

The main transactions with related parties are described below:

LanzaJet

The Company and LanzaJet have entered into a master service agreements defining the terms when LanzaJet is a subcontractor for some of the Company's projects, and conversely, when the Company is a subcontractor for LanzaJet's projects. The accounts payable balance is for work that LanzaJet performed as a subcontractor to the Company.

In connection with the formation of LanzaJet, the Company entered into a transition services agreement with LanzaJet, refer to *Note 6 - Investments*, for more information. The transition services agreement generally sets out the respective rights, responsibilities and obligations of the Company and LanzaJet with respect to R&D services, access to office and laboratory space, business development and other administrative support services. The transition services agreement may be terminated by mutual consent of the Company and LanzaJet, by LanzaJet at any time, and by the Company upon breach or non-payment by LanzaJet. There are no substantive termination penalties in the event the Company terminates. For the years ended December 31, 2023 and 2022, the Company recognized revenue from related parties of approximately \$245 and \$185, respectively, under the transition services agreement.

The Company also provides certain engineering and other services related to a gas-to-jet demonstration plant currently in development by LanzaJet pursuant to the Investment Agreement described in *Note 6 - Investments* and other projects whereby LanzaJet is the customer. The Company recognized revenue of \$468 for the year ended December 31, 2023 and an immaterial amount of revenue for the year ended December 31, 2022. In 2023, LanzaTech additionally sold LanzaJet the right to utilize some of LanzaTech's completed engineering work as a basis for future LanzaJet projects and recorded revenue of \$2,000, net of \$461 of intra-entity profit elimination, with deferred payment terms no later than December 2024.

LanzaJet Note Purchase Agreement

On November 9, 2022, the Company and the other LanzaJet shareholders entered into a Note Purchase Agreement (the "Note Purchase Agreement"), pursuant to which LanzaJet Freedom Pines Fuels LLC ("FPF"), a wholly owned subsidiary of LanzaJet, will issue, from time to time, notes in an aggregate principal amount of up to \$147.0 million (the "Notes"), comprised of approximately \$113.5 million aggregate principal amount of 6.00% Senior Secured Notes maturing December 31, 2043 and \$33.5 million aggregate principal amount of 6.00% Subordinated Secured Notes maturing December 31, 2043. The Company committed to purchase \$5.5 million of Subordinated Secured Notes, which was funded on May 1, 2023. The Senior Secured Notes are secured by a security interest over substantially all assets of FPF, and both the Senior Secured Notes and the Subordinated Secured Notes are secured by a security interest over the intellectual property owned or in-licensed by LanzaJet.

Each purchaser of Notes under the Note Purchase Agreement also received a warrant for the right to purchase 575,000 shares of common stock of LanzaJet for each \$10 million of Notes purchased by such purchaser for an exercise price of \$0.01 per share. The warrants are exercisable when the related loan commitment is funded, and may be exercised until the earlier of the third anniversary following the date the holder's loan commitment is fully funded, or the end of the availability period as defined in the Note Purchase Agreement if the commitment has not been fully funded. In the case of the Company, LanzaTech received warrants to purchase 316,250 shares of common stock of LanzaJet, which became exercisable by the Company when the note was funded on May 1, 2023. Upon funding of the Notes, the warrants meet the accounting criteria to be considered in-substance common stock, and are accounted for as part of the equity-method investment. Refer to *Note 6 - Investments*.

The Note Purchase Agreement may be amended with the approval of holders of at least 66 2/3% of the Notes, except with respect to certain rights that require approval of all holders to amend. Upon an event of default under the Note Purchase Agreement, each purchaser may accelerate the payment of its own Notes. Enforcement against the collateral securing the Notes requires the approval of certain holders as specified in the Notes.

SGLT

The Company supplies SGLT with certain water-soluble organic compounds required in the Company's proprietary gas fermentation process, small-size equipment and consulting services. For the years ended December 31, 2023 and 2022, the Company recognized revenue of approximately \$75 and \$289, respectively. The Company also provided engineering services and incurred costs of \$853 and \$645 for the years ended December 31, 2023 and 2022, respectively.

Additionally, LanzaTech and SGLT entered into a license agreement in 2019, subsequently amended in August 2023, to provide SGLT with the right to sublicense the intellectual property that LanzaTech previously licensed to SGLT. In exchange, the Company is entitled to receive fixed licensing consideration, calculated as a percentage of the maximum amount of royalties owed to SGLT from its sublicensees. For the year ended December 31, 2023, the Company recognized sublicensing revenue of \$1,200. Prior to June 2023, the Company was only entitled to royalties from SGLT if SGLT received sublicense royalty payments. For the twelve months ended months ended December 31, 2022, the Company did not recognize any sublicensing revenue as no royalties were received by SGLT.

Note 16 — Redeemable, Convertible Preferred Stock

Prior to the Business Combination, the Company had six outstanding series of contingently redeemable convertible preferred stock. The dollar amounts and share counts in the table below are adjusted to reflect the impact of the exchange

ratio on the shares authorized, shares issued and outstanding, and issue price. The authorized, issued and outstanding shares, issue price, and carrying value as of December 31, 2022 are as follows (in thousands, except share and per share amounts):

	Shares Authorized	Shares Issued and Outstanding	Issue Price	Carrying Amount
Series A.....	20,414,445	20,414,445	\$0.40 - \$0.90	\$ 12,230
Series B.....	7,582,934	7,582,934	2.37	18,000
Series C.....	18,613,084	18,121,698	3.36	60,850
Series D.....	44,946,572	44,452,681	4.56	188,402
Series E.....	22,678,139	22,678,139	5.23	118,076
Series F.....	15,898,496	15,898,496	5.23	83,073
	<u>130,133,670</u>	<u>129,148,393</u>		<u>\$ 480,631</u>

All redeemable, convertible preferred stock was converted into common shares on the Closing Date of the Business Combination on a 1:1 basis. Immediately before the conversion, all cumulative dividends were declared, totaling a dividend payable of \$241,529. This dividend was paid in-kind and subsequently converted, as a result of the Business Combination, into an additional 24,152,942 common shares. After the in-kind dividend payment and the conversion, the former preferred shareholders held 153,895,644 common shares.

Prior to the Business Combination, redemption features of the preferred shares were not fixed and did not have a determinable price on fixed or determinable dates. As of December 31, 2022, the preferred shares were not currently redeemable, and it was not probable that the preferred shares would become redeemable, since it was uncertain whether or when circumstances exist that would constitute a deemed liquidation event. Accordingly, the Company did not adjust the carrying value of the preferred shares to their redemption values.

Note 17 — Commitments and Contingencies

Litigation

The Company may be involved in legal proceedings and exposed to potential claims in the normal course of business. As of December 31, 2023 and December 31, 2022, the Company does not have any reasonably possible or probable losses from such claims.

Commitments

In November 2022, the Company entered into a lease for real estate to expand its headquarters in Skokie, Illinois. The lease was subsequently amended in December 2023. The lease contains multiple lease components, and the commencement date for some lease components will occur in April and May 2024. Accordingly, for these lease components where the lease has not commenced, there are no right-of-use assets or lease liabilities recorded on the consolidated balance sheets as of December 31, 2023. Total lease payments through 2036 for these lease components are expected to be \$17,216.

Note 18 — Leases

The Company leases certain office space and laboratory facilities. The Company's lease agreements typically do not contain any significant guarantees of asset values at the end of a lease, renewal options or restrictive covenants. Pursuant to ASC 842, *Leases*, all leases are classified as operating leases.

Total operating lease costs and variable lease costs for the years ended December 31, 2023 and 2022 were \$2,702 and \$2,167 and \$3,205 and \$2,227, respectively. Cash paid for amounts included in the measurement of operating lease liabilities for the years ended December 31, 2023 and 2022 was \$1,857 and \$2,370, respectively.

As of December 31, 2023, lease payments for operating leases for the Company's office facility and laboratories are shown below (in thousands):

<u>Year ending December 31,</u>	
2024	\$ 111
2025	602
2026	704
2027	3,101
2028	3,141
Thereafter	<u>27,039</u>
Total lease payments	\$ 34,698
Less: imputed interest	<u>14,756</u>
Total lease liabilities	<u>\$ 19,942</u>

The following is a summary of weighted average remaining lease term and discount rate for all of the Company's operating leases:

	<u>Year Ended December 31,</u>	
	<u>2023</u>	<u>2022</u>
Weighted average remaining lease term (years)	12.7	3.5
Weighted average discount rate	7.50 %	7.50 %

Lessor accounting

In May 2020, the Company executed an agreement to lease certain land to a subsidiary of LanzaJet for a period of 10 years with an option to renew this lease for five additional periods of one year with minimum annual rent due. This agreement is accounted for as an operating lease. In February 2022, the lease agreement with LanzaJet was amended to extend the pre-development term of the lease until the earlier of commencement of construction of the alcohol-to-jet fuel facility on the leased land or December 31, 2023, increased the annual base rent amount and increased the term from 10 years to 12 years. Additionally, the subsidiary of LanzaJet was granted an option to renew this lease for thirteen additional periods of one year. In August 2022, the lease agreement was amended further to increase the annual rent due upon commencement of construction of the alcohol-to-jet fuel facility. We recognize lease revenue on a straight-line basis over the life of the lease agreement. The following future minimum lease payments due to us from the lease agreement at December 31, 2023, is as follows (in thousands)

<u>Year ending December 31,</u>	
2024	\$ 155
2025	155
2026	155
2027	155
2028	155
Thereafter	<u>1,088</u>
	<u>\$ 1,863</u>

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

None

Item 9A. Controls and Procedures

Background

In LanzaTech's registration statement (as filed with the SEC on May 24, 2023), LanzaTech disclosed within the risk factors a material weakness in its internal controls over financial reporting. The disclosure noted that LanzaTech had not sufficiently designed, documented, and implemented formal accounting policies, processes, and controls at the entity level or over the process of the accounting for complex transactions under U.S. GAAP, due to size limitations of the finance and accounting group.

Furthermore, as noted in our quarterly report on Form 10-Q for the period ended September 30, 2023 filed with the U.S. Securities and Exchange Commission ("SEC") on November 13, 2023, subsequent to September 30, 2023 and prior to the third quarter 2023 10-Q filing, we revised the accounting treatment of the Forward Purchase Agreement ("FPA") to reclassify the prepaid forward contract from being presented as a net derivative asset on our condensed consolidated balance sheet to equity and non-current liability on the condensed consolidated balance sheet.

As a result, we restated our financial statements for the quarters ended March 31, 2023 and June 30, 2023, as filed with the SEC on December 4, 2023, to be consistent with this accounting treatment. In connection with the restatement, we concluded that the failure of our internal controls designed to ensure appropriate accounting for complex transactions remains a material weakness in our internal control over financial reporting.

Limitations on Effectiveness of Controls and Procedures

In designing and evaluating our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act")), management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. We do not expect that our disclosure controls and procedures will prevent all errors and all instances of fraud. Disclosure controls and procedures, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the disclosure controls and procedures are met. Further, the design of disclosure controls and procedures must reflect the fact that there are resource constraints, and the benefits must be considered relative to their costs. Because of the inherent limitations in all disclosure controls and procedures, no evaluation of disclosure controls and procedures can provide absolute assurance that we have detected all our control deficiencies and instances of fraud, if any. The design of disclosure controls and procedures also is based partly on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Evaluation of Disclosure Controls and Procedures

Our disclosure controls and procedures are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the rules and forms of the SEC, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Exchange Act Rule 13a-15(e) and 15d-15(e)) as of December 31, 2023. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that as a result of the material weaknesses in our internal control over financial reporting described below, the Company's disclosure controls and procedures were ineffective as of December 31, 2023. We are in the process of implementing measures designed to improve our disclosure controls and procedures.

Management's Report on Internal Control Over Financial Reporting

Management, including our CEO and CFO, is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control over financial reporting includes those policies and procedures designed to, in reasonable detail, accurately and fairly reflect the Company's transactions, and provide reasonable assurance regarding the reliability of our financial reporting and the preparation of our financial statements for external reporting purposes in accordance with GAAP.

An effective internal control system, no matter how well designed, has inherent limitations, including the possibility of human error or overriding of controls, and therefore can provide only reasonable assurance with respect to reliable financial reporting. Because of its inherent limitations, our internal control over financial reporting may not prevent or detect all misstatements, including the possibility of human error, the circumvention or overriding of controls, or fraud. Effective internal controls can provide only reasonable assurance with respect to the preparation and fair presentation of financial statements.

Our management evaluated the effectiveness of our internal control over financial reporting as of December 31, 2023. In making this evaluation, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) in Internal Control-Integrated Framework (2013). Based on this evaluation, management has concluded our internal control over financial reporting as of December 31, 2023 was not effective due to the material weaknesses in the Company’s internal control over financial reporting described below.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of LanzaTech’s annual or interim financial statements will not be prevented or detected on a timely basis.

During the audit of our financial statements for the fiscal year ended December 31, 2023 we identified material weaknesses in internal control over financial reporting relating to: (i) the accounting for complex transactions and estimates requiring significant judgment and (ii) revenue recognition.

Throughout 2023, management implemented controls designed to remediate elements of the deficiency noted in the previously disclosed material weakness. However, the material weakness has not been fully remediated as of December 31, 2023. In particular, the Company has not effectively designed and implemented internal controls related to accounting for complex transactions and estimates requiring significant judgment.

The Company's revenue contracts often contain unique and complex terms that require judgement in applying the relevant revenue guidance. The Company’s controls over revenue recognition were not designed and operating at the appropriate level of precision to address the complexity inherent in our revenue cycle as of December 31, 2023.

This was the first year that we were required to conduct an evaluation of the effectiveness of our internal control over financial reporting. We will continue to assess the allocation of resources necessary to design and implement effective controls over the accounting for complex transactions and other areas requiring significant judgment. We have taken and will continue to take steps to improve our internal control processes and will continue to review, optimize, enhance, and test our controls and procedures as our control environment matures over time. These measures include enhancing the design and implementation of our internal controls over financial reporting to comply with the COSO 2013 Internal Control-Integrated Framework, with particular focus on our material weaknesses.

The material weaknesses will not be considered remediated until the applicable controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Accordingly, the material weaknesses were not remediated as of December 31, 2023.

Notwithstanding the material weaknesses in internal control over financial reporting described above, our management has concluded that our consolidated financial statements included in this Annual Report on Form 10-K are fairly stated in all material respects in accordance with GAAP.

Changes in Internal Control Over Financial Reporting

Other than the material weaknesses and remediation efforts described above, including the documentation of the design of our internal controls over financial reporting to meet the requirements of a large accelerated filer which we became as of December 31, 2023, there were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended December 31, 2023, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Securities Trading Plans of Directors and Officers

On November 13, 2023, Freya Burton, Chief Sustainability Officer, adopted a trading plan (the “Burton Plan”) intended to satisfy the affirmative defense of Rule 10b5-1(c). The Burton Plan is scheduled to commence on February 29, 2024, with a termination date of October 31, 2024, and provides for the sale of up to 131,239 shares of the Company’s common stock. The Burton Plan contemplates the sale of an additional 174,986 shares of Common Stock by Ms. Burton’s spouse.

On December 11, 2023, Robert Conrado, Vice President of Engineering Design and Development, adopted a trading plan (the “Conrado Plan”) intended to satisfy the affirmative defense of Rule 10b5-1(c). The Conrado Plan is scheduled to commence on March 11, 2024, with a termination date of September 11, 2024, and provides for the sale of up to 696,553 shares of the Company’s common stock.

Except as noted above, during the three months ended December 31, 2023, none of our other directors or executive officers adopted or terminated any contract, instruction or written plan for the purchase or sale of our securities that was intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or any “non-Rule 10b5-1 trading arrangement” (as defined in Item 408(c) of Regulation S-K).

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item will be included in the Company’s definitive proxy statement to be filed with the SEC within 120 days after December 31, 2023, in connection with the solicitation of proxies for the Company’s 2024 annual meeting of shareholders (the “2024 Proxy Statement”), and is incorporated herein by reference.

LanzaTech has adopted a Code of Conduct and Ethics that applies to all officers, directors and employees. The Code of Conduct and Ethics codifies the business and ethical principles that govern all aspects of our business, reflecting our commitment to this culture of honesty, integrity and accountability. In addition to following the Code of Conduct and Ethics, officers, directors and employees are expected to seek guidance in situations where there is a question regarding compliance issues, whether with the letter or the spirit of our policies and applicable laws. LanzaTech’s Code of Conduct and Ethics applies to all of the executive officers, directors and employees of LanzaTech and its subsidiaries. We will provide, without charge, upon request, copies of the Code of Ethics. Our Code of Conduct and Ethics is available on our website. LanzaTech’s website and the information contained on, or that can be accessed through, such website is not deemed to be incorporated by reference in, and are not considered part of, this Annual Report.

Item 11. Executive Compensation

The information required by this Item will be included in the 2024 Proxy Statement, and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by Item 403 of Regulation S-K in the Proxy Statement under the caption "Security Ownership" is incorporated herein by reference.

The following table shows information, as of December 31, 2023, with respect to shares of our common stock that may be issued under existing equity compensation plans. The category “Equity compensation plans approved by stockholders” in the table below consists of the LanzaTech 2006 Share Option Scheme (the “2006 Scheme”), the LanzaTech NZ, Inc. 2013 Stock Plan (the “2013 Plan”), the LanzaTech NZ, Inc. 2015 Stock Plan (the “2015 Plan”), the LanzaTech NZ, Inc. 2019 Stock Plan (the “2019 Plan”), and the LanzaTech 2023 Long-Term Incentive Plan (the “2023 Plan”).

Plan Category	(a) Number of shares to be issued upon exercise of outstanding options, warrants, and rights (1)	(b) Weighted-average exercise price of all outstanding options, warrants, and rights (2)	(c) Number of securities available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (3)
Equity compensation plans approved by security holders	23,491,945	\$ 1.96	12,006,935
Equity compensation plans not approved by security holders.....	—	—	—
Total	23,491,945	\$ 1.96	12,006,935

- (1) Consists of the following: 65,620 shares of common stock subject to outstanding awards changed under the 2006 Scheme, 106,584 shares of shares of common stock subject to outstanding awards changed under the 2013 Plan, 6,598,471 shares of common stock subject to outstanding awards changed under the 2015 plan, 6,343,615 shares of common stock subject to outstanding awards changed under the 2019 Plan, and 10,377,655 shares of common stock subject to outstanding awards changed under the 2023 plan. Performance-based RSUs are, for purposes of this column, assumed to be payable at 100% of target. Following the Business Combination, no additional awards have been or will be granted under the 2006 Scheme or the 2013, 2015, and 2019 Plans.
- (2) The weighted-average exercise price is calculated solely on the exercise prices of the outstanding options and does not reflect the shares of common stock that will be issued upon the vesting of outstanding awards of RSUs, which have no exercise price.
- (3) Consists of shares available under the 2023 plan as of December 31, 2023. The aggregate number of shares will automatically increase on January 1 of each year commencing on January 1, 2024, before the expiration of the 2023 Plan, in an amount equal to 3% of the total number of shares of LanzaTech’s capital stock outstanding on December 31 of the preceding year, unless the Board acts prior to January 1st of a given year to provide that the increase for such year will be a lesser number. The maximum aggregate number of shares which may be issued thereunder pursuant to incentive stock options (“ISOs”) is 760,000,000 shares.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item will be included in the 2024 Proxy Statement, and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Our independent registered public accounting firm is Deloitte & Touche LLP (PCAOB ID No. 34).

The information required by this Item will be included in the 2024 Proxy Statement, and is incorporated herein by reference.

PART IV

Item 15. Exhibit and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

(1) Financial Statements

Our consolidated financial statements are as set forth under Item 8 of this report on Form 10-K.

(2) Financial Statement Schedules.

All schedules have been omitted because they are either not applicable, not required, or the required information has been included in the consolidated financial statements or notes thereto.

(3) **Exhibits.** The following list of exhibits includes exhibits submitted with this Form 10-K as filed with the SEC and those incorporated by reference to other filings.

Exhibit	Description
2.1†**	Merger Agreement, dated as of March 8, 2022, by and among AMCI Acquisition Corp. II, AMCI Merger Sub, Inc. and LanzaTech NZ, Inc. (incorporated by reference to Exhibit 2.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
2.2**	Amendment No. 1 to Merger Agreement, dated as of December 7, 2022, by and among AMCI Acquisition Corp. II, AMCI Merger Sub, Inc. and LanzaTech NZ, Inc. (incorporated by reference to Exhibit 2.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
3.1**	Amended and Restated Certificate of Incorporation of LanzaTech Global, Inc., (incorporated by reference to Exhibit 3.1 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
3.2**	Amended and Restated Bylaws of LanzaTech Global, Inc. (incorporated by reference to Exhibit 3.2 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
4.1**	Warrant Agreement, dated as of August 3, 2021, between AMCI Acquisition Corp. II and Continental Stock Transfer & Trust Company (incorporated by reference to Exhibit 4.1 of AMCI Acquisition Corp. II's Current Report on Form 8-K (File No. 001-40282), filed with the SEC on August 6, 2021).
4.2**	Form of Initial Subscription Agreement (incorporated by reference to Exhibit 10.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
4.3**	Form of Amendment and Consent of Initial PIPE Investors (incorporated by reference to Exhibit 10.1.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
4.4**	Form of Additional Subscription Agreement (incorporated by reference to Exhibit 10.40 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
4.5**	Form of Amendment and Consent of Additional PIPE Investors (incorporated by reference to Exhibit 10.40.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
4.6**	Subscription Agreement between AMCI Acquisition Corp. II and Oxy Low Carbon Ventures, LLC. (incorporated by reference to Exhibit 10.1 of AMCI Acquisition Corp. II.'s Current Report on Form 8-K, filed with the SEC on February 7, 2023).
4.7**	Subscription Agreement between AMCI Acquisition Corp. II and Pescadero Capital, LLC. (incorporated by reference to Exhibit 10.2 of AMCI Acquisition Corp. II.'s Current Report on Form 8-K, filed with the SEC on February 7, 2023).
4.8**	Simple Agreement for Future Equity, dated as of December 8, 2021, by and between LanzaTech NZ, Inc. and ArcelorMittal XCarb S.à r.l. (incorporated by reference to Exhibit 10.37 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).

- 4.9** SAFE Warrant, dated as of December 7, 2021, from LanzaTech NZ, Inc. to ArcelorMittal XCarb S.à r.l. (incorporated by reference to Exhibit 4.2 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
- 4.10** Forward Purchase Agreement, dated February 3, 2023 (incorporated by reference to Exhibit 10.1 of AMCI's Current Report on Form 8-K (File No. 001-40282), filed with the SEC on February 6, 2023).
- 4.11** Assignment and Novation Agreement, dated February 3, 2023, by and among AMCI Acquisition Corp. II, LanzaTech NZ, Inc., ACM ARRT H LLC, and and Vellar Opportunity Fund SPV LLC - Series 10. (incorporated by reference to Exhibit 4.3 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
- 4.12** Form of Shortfall Warrant (incorporated by reference to Exhibit 4.4 to LanzaTech Global, Inc's Current Report on Form 8-K/A, filed with the SEC on March 28, 2023).
- 4.12.1** Form of Amended Shortfall Warrant (incorporated by reference to Exhibit 4.12.1 of the Company's Registration Statement on Form S-1/A, filed with the SEC on May 22, 2023.)
- 10.2** LanzaTech 2023 Long-Term Incentive Plan (incorporated by reference to Exhibit 3.3 of LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
- 10.2.1+** Form of Stock Option Agreement under the LanzaTech 2023 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.4.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.2.2+** Form of Time-Vested Restricted Stock Unit Agreement under the LanzaTech 2023 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.4.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.2.3+** Form of Director Restricted Stock Unit Agreement under the LanzaTech 2023 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.4.3 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.2.4+** Form of Time- and Performance-Vested Restricted Stock Unit Agreement under the LanzaTech 2023 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.4.4 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.3** Registration Rights Agreement, by and among LanzaTech Global, Inc., LanzaTech NZ, Inc., AMCI Sponsor II LLC, and the holders identified on Schedule I thereto (incorporated by reference to Exhibit 2.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.4#** Exclusive Patent License Agreement, dated September 13, 2018, by and between Battelle Memorial Institute and LanzaTech, Inc. (incorporated by reference to Exhibit 10.12 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.6#** Letter Amendment 1, dated January 13, 2020, between Battelle Memorial Institute and LanzaTech, Inc (incorporated by reference to Exhibit 10.12.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.7#** Clarification Letter, dated April 24, 2020, between Battelle Memorial Institute and LanzaTech, Inc. (incorporated by reference to Exhibit 10.12.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.8#†** Amended and Restated Investment Agreement, dated April 2, 2021, by and among LanzaTech, Inc., LanzaJet, Inc., Mitsui & Co., Ltd., Suncor Energy Inc., British Airways PLC and Shell Ventures LLC (incorporated by reference to Exhibit 10.13 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.9#†** Intellectual Property and Technology License Agreement, dated May 28, 2020, between LanzaTech, Inc. and LanzaJet, Inc. (incorporated by reference to Exhibit 10.14 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.10#†** Amended and Restated Stockholders' Agreement, dated April 2, 2021, by and among LanzaJet, Inc., LanzaTech, Inc., Mitsui & Co., Ltd., Suncor Energy Inc., British Airways PLC, and Shell Ventures LLC. (incorporated by reference to Exhibit 10.15 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).

- 10.11#** Amended and Restated Alliance Agreement, dated February 15, 2022, by and between LanzaTech NZ, Inc. and Mitsui & Co., Ltd. (incorporated by reference to Exhibit 10.16 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.11.1#** Amendment No. 1 to Amended and Restated Alliance Agreement, dated March 24, 2022, by and between LanzaTech NZ, Inc. and Mitsui & Co., Ltd. (incorporated by reference to Exhibit 10.16.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.11.2#** Amendment No. 2 to Amended and Restated Alliance Agreement, dated October 2, 2022, by and between LanzaTech NZ, Inc. and Mitsui & Co.,Ltd. (incorporated by reference to Exhibit 10.16.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.12#** Articles of Association of Beijing Shougang LanzaTech Technology Co., Ltd. (incorporated by reference to Exhibit 10.17 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.13** Side Letter Agreement, dated November 3, 2021, by and among Beijing Shougang LanzaTech Technology Co., Ltd., Mitsui & Co., Ltd., and LanzaTech Hong Kong Limited (incorporated by reference to Exhibit 10.18 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.14#** 2021 Intellectual Property Rights License Agreement, dated September 6, 2021, between Beijing Shougang LanzaTech Technology Co., Ltd. and LanzaTech Hong Kong Limited (incorporated by reference to Exhibit 10.19 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.14.1** Amendment No. 1 to 2021 Intellectual Property License Agreement, dated January 14, 2022, between Beijing Shougang LanzaTech Technology Co., Ltd. and LanzaTech Hong Kong Limited (incorporated by reference to Exhibit 10.19.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.15#** Letter Agreement, dated April 12, 2021, among LanzaTech New Zealand Limited, LanzaTech Hong Kong Limited, Sinopec Capital Co, Ltd and Beijing Shougang-LanzaTech Technology Co., Ltd. (incorporated by reference to Exhibit 10.20 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.16#†** Grant Agreement, dated October 7, 2020, among the European Climate, Infrastructure and Environmental Executive Agency, SkyNRG BV, RSB Roundtable on Sustainable Biomaterials Association, LanzaTech BV, E4tech UK Ltd, and Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung E.V. (incorporated by reference to Exhibit 10.21 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.17#** Memorandum of Understanding, dated June 20, 2018, between Sekisui Chemical Co., Ltd. and LanzaTech, Inc. (incorporated by reference to Exhibit 10.22 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.18#** Term Sheet, dated February 21, 2020, between Sekisui Chemical Co., Ltd. and LanzaTech, Inc. (incorporated by reference to Exhibit 10.23 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.19#** Letter of Agreement, dated December 4, 2017, between LanzaTech, Inc. and IndianOil Corporation Limited (incorporated by reference to Exhibit 10.24 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.20#** Master Licensing Agreement, dated October 6, 2020, between Suncor Energy Inc. and LanzaTech, Inc. (incorporated by reference to Exhibit 10.25 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.20.1** Amendment No. 1 to Master Licensing Agreement, dated October 2, 2022, between Suncor Energy Inc. and LanzaTech, Inc. (incorporated by reference to Exhibit 10.25.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.21+** Executive Employment Agreement, dated April 20, 2010, between Dr. Jennifer Holmgren and LanzaTech, Inc. (incorporated by reference to Exhibit 10.26 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).

- 10.21.1+** Letter from LanzaTech, Inc. to Dr. Jennifer Holmgren, dated May 17, 2021. (incorporated by reference to Exhibit 10.26.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.21.2+†** Executive Employment Agreement, dated December 20, 2022, between Dr. Jennifer Holmgren and LanzaTech Global, Inc. (incorporated by reference to Exhibit 10.26.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.22+** Employment Agreement, dated October 21, 2013, between Dr. Sean Simpson and LanzaTech, Inc. (incorporated by reference to Exhibit 10.27 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.22.1+** Letter from LanzaTech, Inc. to Dr. Sean Simpson, dated January 6, 2020 (incorporated by reference to Exhibit 10.27.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.22.2+†** Transition Letter, entered into on January 2, 2023, between Dr. Sean Simpson and LanzaTech, Inc. (incorporated by reference to Exhibit 10.27.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.22.3+†** Consulting Agreement, entered into on January 2, 2023, between Dr. Sean Simpson and LanzaTech, Inc. (incorporated by reference to Exhibit 10.27.3 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.23+** Employment Agreement, dated May 28, 2021, between Geoff Trukenbrod and LanzaTech, Inc. (incorporated by reference to Exhibit 10.28 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.23.1+†** Executive Employment Agreement, dated December 21, 2022, between Geoff Trukenbrod and LanzaTech Global, Inc. (incorporated by reference to Exhibit 10.28.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.24+** Deed Poll Relating to Option Schemes Established by LanzaTech New Zealand Limited and LanzaTech New Zealand Limited 2006 Share Option Scheme (incorporated by reference to Exhibit 10.29 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.24.1+** Deed of Amendment to Deed Poll Relating to Option Schemes Established by LanzaTech New Zealand Limited, dated September 12, 2011 (incorporated by reference to Exhibit 10.29.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.24.2+** Deed of Amendment to Deed Poll Relating to Option Schemes Established by LanzaTech New Zealand Limited, dated January 8, 2016 (incorporated by reference to Exhibit 10.29.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.24.3+** Deed of Amendment to Deed Poll Relating to Option Schemes Established by LanzaTech New Zealand Limited, dated October 28, 2021 (incorporated by reference to Exhibit 10.29.3 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.25+** LanzaTech New Zealand Limited 2011 Stock Plan. (incorporated by reference to Exhibit 10.30 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.25.1+** Form of Stock Option Agreement under the LanzaTech New Zealand Limited 2011 Stock Plan (incorporated by reference to Exhibit 10.30.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.25.2+** Form of Stock Option Agreement under the LanzaTech New Zealand Limited 2011 Stock Plan (New Zealand employees) (incorporated by reference to Exhibit 10.30.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.26+** LanzaTech New Zealand Limited 2013 Stock Plan (incorporated by reference to Exhibit 10.31 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.26.1+** Form of Stock Option Agreement under the LanzaTech New Zealand Limited 2013 Stock Plan (incorporated by reference to Exhibit 10.31.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).

- 10.26.2+** Form of Stock Option Agreement under the LanzaTech New Zealand Limited 2013 Stock Plan (New Zealand employees) (incorporated by reference to Exhibit 10.31.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.27+** LanzaTech New Zealand Limited 2015 Stock Plan (incorporated by reference to Exhibit 10.32 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.27.1+** Form of Stock Option Agreement under the LanzaTech New Zealand Limited 2015 Stock Plan (incorporated by reference to Exhibit 10.32.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.28+** LanzaTech NZ, Inc. 2019 Stock Plan (incorporated by reference to Exhibit 10.33 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.28.1+†** Form of Notice of Grant and Subscription for Stock Option under the LanzaTech NZ, Inc. 2019 Stock Plan (incorporated by reference to Exhibit 10.33.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.28.2+†** Form of Notice of Restricted Stock Grant under the LanzaTech NZ, Inc. 2019 Stock Plan (incorporated by reference to Exhibit 10.33.2 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.28.3+** Form of Stock Option Agreement under the LanzaTech NZ, Inc. 2019 Stock Plan (incorporated by reference to Exhibit 10.33.3 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.29+** Amendment to LanzaTech New Zealand Limited Stock Option Award Agreements, dated October 28, 2021 (incorporated by reference to Exhibit 10.34 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.30+** Annual Bonus Plan (incorporated by reference to Exhibit 10.35 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.31+** Form of indemnification agreement between LanzaTech Global, Inc. and each of its directors and officers (incorporated by reference to Exhibit 10.36 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.32#†** Framework Agreement, dated as of October 2, 2022, by and between LanzaTech, Inc. and BGTF LT Aggregator LP (incorporated by reference to Exhibit 10.37 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.33#†** Simple Agreement for Future Equity, dated as of October 2, 2022, by and between LanzaTech NZ, Inc. and BGTF LT Aggregator LP (incorporated by reference to Exhibit 10.38 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.33.1** Amendment No. 1 to Simple Agreement for Future Equity, dated as of December 30, 2022, by and between LanzaTech NZ, Inc. and BGTF LT Aggregator LP (incorporated by reference to Exhibit 10.38.1 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.34#** Cooperation Letter Agreement, dated as of October 2, 2022, by and between LanzaTech, Inc., Suncor Energy, Inc. and BGTF LT Aggregator LP (incorporated by reference to Exhibit 10.39 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.35+** LanzaTech U.S. Executive Severance Plan (incorporated by reference to Exhibit 10.41 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.36†#** Grant Agreement, by and between LanzaTech UK Limited and the Secretary of State for Transport, dated December 12, 2022 (incorporated by reference to Exhibit 10.1 of AMCI Acquisition Corp. II.'s Current Report on Form 8-K (File No. 001-40282), filed with the SEC on December 16, 2022).
- 10.37†#** Note Purchase Agreement, dated November 9, 2022, by and among LanzaJet Freedom Pines Fuels LLC, LanzaTech, Inc. and the other purchasers named therein (incorporated by reference to Exhibit 10.43 of AMCI Acquisition Corp. II.'s Registration Statement on S-4/A, filed with the SEC on January 10, 2023).
- 10.38+** Form of director compensation letter (incorporated by reference to Exhibit 10.41 to LanzaTech Global, Inc.'s Current Report on Form 8-K/A, filed with the SEC on March 28, 2023).

16.1**	Letter re: Change in certifying accountant (incorporated by reference to Exhibit 16.1 to LanzaTech Global Inc.'s Current Report on Form 8-K/A, filed with the SEC on March 28, 2023).
21.1**	Subsidiaries of the Registrant (incorporated by reference to Exhibit 21.1 to LanzaTech Global Inc.'s Current Report on Form 8-K, filed with the SEC on February 13, 2023).
23	Consent of Deloitte & Touche LLP, independent registered public accounting firm to LanzaTech Global, Inc.
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) under the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) under the Securities and Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
97	LanzaTech Clawback Policy
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

† Certain of the exhibits and schedules to this exhibit have been omitted in accordance with Regulation S-K Item 601(a)(5). The Registrant agrees to furnish a copy of all omitted exhibits and schedules to the SEC upon its request.

* To be filed by amendment.

** Previously filed.

Certain confidential information contained in this exhibit, marked by brackets, has been redacted in accordance with Regulation S-K Item 601(b) because the information (i) is not material and (ii) is the type of information that the registrant both customarily and actually treats as private and confidential.

+ Management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, as amended, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Skokie, State of Illinois, on February 29, 2024.

LANZATECH GLOBAL, INC.

By: /s/ Jennifer Holmgren, Ph.D.

Name: Jennifer Holmgren, Ph.D.

Title: Chief Executive Officer and Director

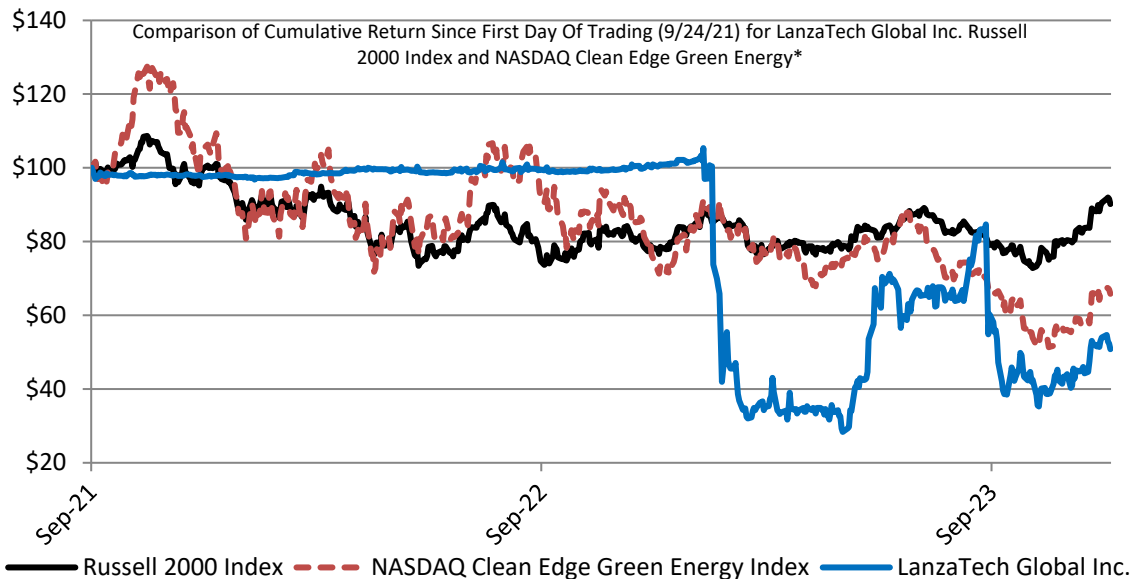
Pursuant to the requirements of the Securities Exchange Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated:

<u>Name</u>	<u>Position</u>	<u>Date</u>
<u>/s/ Jennifer Holmgren, Ph.D.</u> Jennifer Holmgren, Ph.D.	Chief Executive Officer and Director (Principal Executive Officer)	February 29, 2024
<u>/s/ Geoff Trukenbrod</u> Geoff Trukenbrod	Chief Financial Officer (Principal Financial Officer)	February 29, 2024
<u>/s/ George Dimitrov</u> George Dimitrov	Vice President, Finance (Principal Accounting Officer)	February 29, 2024
<u>/s/ Barbara Byrne</u> Barbara Byrne	Director	February 29, 2024
<u>/s/ Nigel Gormly</u> Nigel Gormly	Director	February 29, 2024
<u>/s/ Dorri McWhorter</u> Dorri McWhorter	Director	February 29, 2024
<u>/s/ Jim Messina</u> Jim Messina	Director	February 29, 2024
<u>/s/ Nimesh Patel</u> Nimesh Patel	Director	February 29, 2024
<u>/s/ Gary Rieschel</u> Gary Rieschel	Director	February 29, 2024

PERFORMANCE GRAPH

This performance graph shall not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or incorporated by reference into any of our other filings under the Securities Act of 1933, as amended (the “Securities Act”), or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

The following graph shows a comparison, from September 24, 2021 through December 31, 2023, of the cumulative total return on our common stock, the Russell 2000 Index and the Nasdaq Clean Edge Green Energy Index. Such returns are based on historical results and are not intended to suggest future performance. The graph assumes an investment of \$100 in LanzaTech common stock and in each of the indices. Data for Russell 2000 Index and the Nasdaq Clean Edge Green Energy Index assumes reinvestment of dividends. We have never declared or paid cash dividends on our common stock nor do we anticipate paying any such cash dividends in the foreseeable future.



*The period from September 24, 2021 to February 8, 2024 reflects the performance of our predecessor AMCI Acquisition Corp. II (“AMCI”). On February 8, 2023, AMCI, consummated the business combination pursuant to the terms of the Agreement and Plan of Merger, dated as of March 8, 2022 (as amended on December 7, 2022), by and among AMCI, AMCI Merger Sub, Inc. and LanzaTech NZ, Inc. In connection with the consummation of the business combination, AMCI changed its name to “LanzaTech Global, Inc. Our common stock trades under the ticker symbol “LNZA” on the Nasdaq Stock Market. Prior to the consummation of the business combination, our common shares were listed on Nasdaq Stock Market under the symbol “AMCI”.

BOARD OF DIRECTORS

Dr. Jennifer Holmgren, Ph.D. – Chief Executive Officer and Board Chair, LanzaTech Global, Inc.
Jim Messina – Lead Independent Director^(a) – President and Chief Executive Officer of The Messina Group
Nigel Gormly^{(b)(c)} – Founder and Director of Waihou Capital
Dorri McWhorter^{(b)(c)} – President and Chief Executive Officer of YMCA of Metropolitan Chicago
Barbara Moakler Byrne^{(a)(b)} – Former Vice Chairman, Investment Banking at Barclays PLC
Gary Rieschel^(a) – Founder and Managing Partner of Qiming Venture Partners

Key:

- (a) Member of Compensation Committee
- (b) Member of Audit Committee
- (c) Member of Nominating and Corporate Governance Committee

CORPORATE OFFICERS

Jennifer Holmgren, Ph.D. – Chief Executive Officer and Director
Geoff Trukenbrod – Chief Financial Officer
Freya Burton – Chief Sustainability Officer
Joseph Blasko – General Counsel
Michael Köpke – Chief Innovation Officer
Aura Cuellar – President and Chief Commercial Officer
Chad Thompson – Chief People Officer
Robert Conrado, Ph.D. – Chief Technology Officer
Zarath Summers, Ph.D. – Chief Science Officer

CORPORATE HEADQUARTERS

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Stock Exchange Listing

LanzaTech Global, Inc. is listed on the Nasdaq Capital Market (Nasdaq:LNZA)

INVESTOR RELATIONS

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