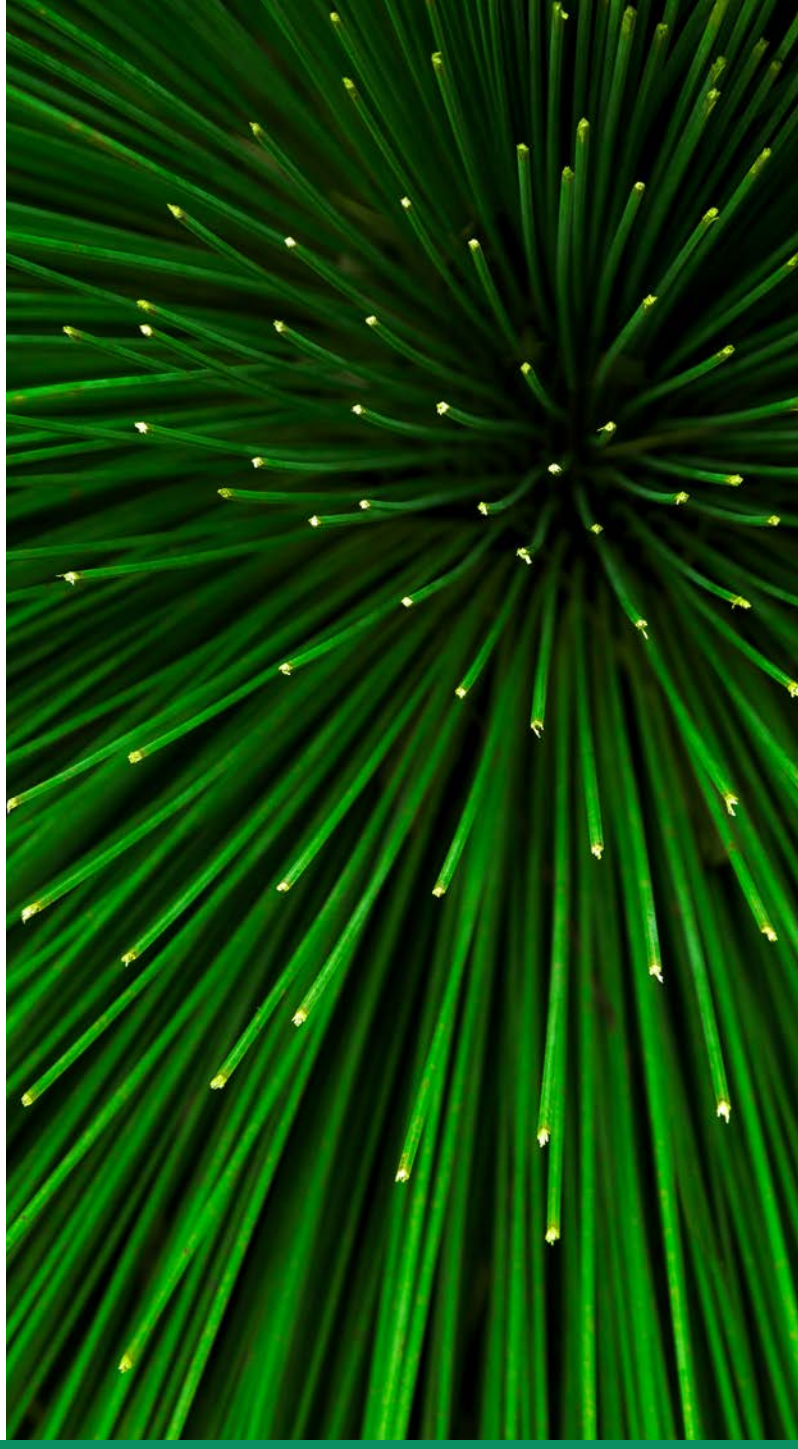
2021

Annual Report

LanzaTech

Contents

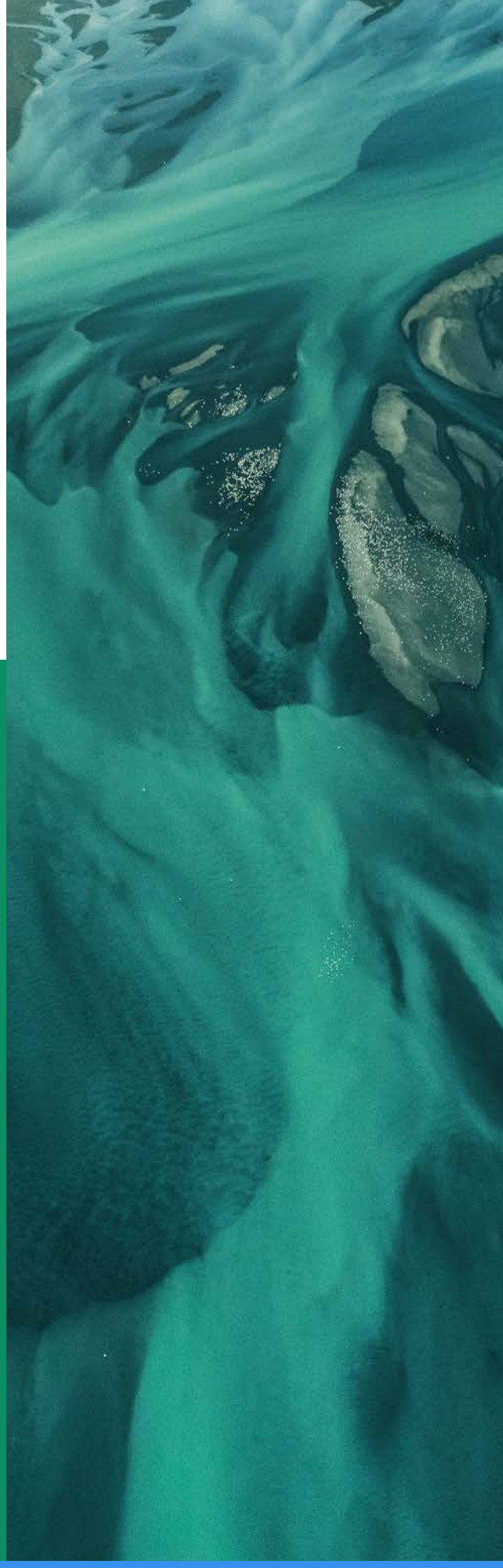


This annual report contains forward-looking statements. All statements, other than statements of historical fact, included in this annual report are forward-looking statements reflecting management's current beliefs and expectations. In some cases, you can identify forward-looking statements by terminology such as "will," "anticipate," "expect," "believe," "intend" and "should" or the negative of these terms or other comparable terminology. Forward-looking statements in this annual report include, but are not limited to, statements about the initiation, timing, progress and results of our construction projects; the anticipated benefits of our biocatalysts relative to existing alternatives; the commercialization of our technology; the implementation of our business model, strategic plans for our business; the scope of protection we are able to establish and maintain for intellectual property rights covering our technology; our estimated available market opportunity; our ability to maintain and establish collaborations; our financial performance; developments relating to our competitors and our industry; and statements regarding our markets, including the estimated size and anticipated growth in those markets. These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. Except as required by law, we assume no obligation to update these forward-looking statements, even if new information becomes available in the future.

2021
In Brief

LanzaTech sees a future in which our everyday products are made from recycled carbon.

This year, our vision became a reality.



Launched CarbonSmart podcast

1,000 Patents Granted

Started-up our second commercial facility

5 CarbonSmart™ products in stores globally

2021

A Transformative Year

A letter from our CEO, Jennifer Holmgren

Looking back, 2021 was a transformative year for both LanzaTech and our global partners. It was a year in which we acknowledged and started to get comfortable with our new normal. We learned to be intentional with our time – both personally and professionally. We came together as a community – albeit while staying apart – to address the urgent challenges brought on by the global pandemic and our changing climate.

As I write this letter, we as a society are preparing to enter the third year of the global pandemic. Around the globe, we see companies reengaging with consumers with a new sense of purpose. Recovery, resilience, and a belief that humans must be the catalyst for change, are helping create a new carbon paradigm – enabled by companies like LanzaTech.

We have a simple goal: to challenge and change the way the world uses carbon, to enable a new circular carbon economy where carbon is reused rather than wasted, where skies and oceans are kept clean, and where pollution becomes a thing of the past. The result will be a post pollution future.

A Post Pollution Future

Transforming our carbon economy requires a paradigm shift. By working with partners, LanzaTech has developed a multifaceted waste conversion technology that can take any source of waste carbon and turn it into ethanol. We think of ethanol as a building block to make everything we use in our daily lives; things that today are made from virgin fossil inputs. Because of this, the new products we helped launch in 2021 not only demonstrate a pathway to reducing greenhouse gas emissions, but also a path to creating supply chains where fossil resources can stay in the ground.

Be Safe

Safety is our top priority and is integral to all aspects of our business. In 2021, we continued to implement additional COVID-19 safety protocols in alignment with regional and national guidelines that allowed us to keep operating "business-as-usual" in all of LanzaTech's locations. Our commitment to safety is apparent in our 2021 data - we reported zero COVID-19 workplace transmissions, zero injury-related downtime, and continued incident-free facility shut-downs and start-ups. We are also proud of our teammates' commitment to taking care of each other: we recorded a 93% COVID-19 vaccination rate amongst global LanzaTech employees.

Second Commercial Plant

Our second commercial facility, in partnership with Beijing Shougang LanzaTech New Energy Technology Co., Ltd., began operating in China's Ningxia Province in April of this year. This facility converts ferroalloy emissions to ethanol, and abated around 13,000 MT of CO_2 throughout the course of 2021. I am proud of our team and global partners for accomplishing this feat despite the challenging logistics.

Living Our Values

Our employee-led initiatives continued to grow in 2021. Blend, LanzaTech's Diversity, Equity, and Inclusion (DEI) group, hosted several virtual events throughout the year, including panel discussions and fundraisers along with awareness campaigns throughout our global operations. We achieved gender parity in 3 of our science teams, and continue efforts to promote equity throughout all of our teams.

Our Green Group, a sub-committee of the Environmental, Health & Safety (EH&S) Committee, published LanzaTech's first sustainability report, which took an in-depth look at the environmental footprint of our own operations.

CarbonSmart Podcast

CarbonSmart, LanzaTech's flagship podcast, welcomed a range of guests and thought leaders from around the world to discuss the state of our planet, innovation, social justice, and how policy and industry can bend the carbon curve. The unique format – in which guests ask the questions – has been extremely well received since it first came on the air in March 2021.

CarbonSmart

CarbonSmart is a provocative daisy-chain conversation where the guests ask the questions.

Sustainable Fashion

In 2021, we debuted CarbonSmart™ apparel with partners Lululemon and Zara.

Zara's limited edition Capsule Collection made from carbon emissions was sold online globally, just in time for the winter holidays. To produce this clothing, ethanol from steel mill emissions was converted to monoethylene glycol (MEG) by India Glycols Limited (IGL) and then converted to PET and polyester yarn by Far Eastern New Century (FENC).

We also announced a partnership with On and Borealis, to make EVA foam from carbon emissions for On's CleanCloud™ running shoes. On is a Swiss sporting goods company that delivers industry-disrupting innovation in premium footwear, apparel, and accessories. Borealis is one of the world's leading providers of advanced and circular polyolefin solutions and a European market leader in base chemicals and the mechanical recycling of plastics.

Sustainable Fragrances

This year, we announced a partnership with Coty to create an entire fragrance line formulated from sustainable CarbonSmart ethanol made from carbon emissions. We also worked with BASF to produce n-octanol at laboratory scale; n-octanol can be used as a base in food flavoring and other fragrances and is an important raw material in the manufacturing of many consumer products.

Sustainable Packaging

In 2021, we saw how we could not only make the products found inside a bottle, but also use our technology to produce the bottle itself.

We worked with Mibelle and Migros to create the world's first PET bottle from captured carbon emissions that would otherwise have been released into the atmosphere as greenhouse gases.

In 2020, Mibelle launched a number of liquid cleaning products in the Migros supermarket chain containing LanzaTech CarbonSmart ethanol. In 2021, Mibelle then introduced carbon recycled bottles for a number of their products, including cleaners and cosmetics. These bottles contain up to 30% PET produced from CO_2 (with Mass Balance), replacing virgin PET typically obtained from fossil inputs. We think about it as CarbonSmart inside and out!

Welcome to the Post Pollution Future

Milestones Reached

Innovation lies at the core of sustainable economic growth, job creation, and is key to solving some of our world's most significant challenges. Patents are designed to encourage this ongoing discovery and innovation. In 2021, we secured our 1,000th patent.

For a company that was established just over a decade ago, securing 1,000 patents is a notable achievement and speaks to the disruptive nature of our technology. Each patent contributes to a platform enabling the use of feedstocks, including local waste resources, to produce a large variety of sustainable fuels, chemicals, and products. This is a critical consideration as countries begin their own energy transitions. This achievement highlights the ingenuity of our team in tackling the problem of how to bend the carbon curve.

Sustainable Aviation

The aviation industry faces incredible challenges in producing the volumes of sustainable aviation fuel (SAF) needed to satisfy government mandates. In 2021, together with LanzaJet, a company which we founded and spun out in 2020, we advanced several projects designed to support meeting the industry's 10% SAF target by 2030. With our inherent feedstock flexibility that includes the potential to use carbon dioxide and fossil-free power, we have an opportunity to help the aviation industry meet its commitment to Net Zero.

At the invitation of The White House, we participated in the Biden Administration's Climate Change Summit on sustainable aviation fuel, and were appointed to the U.K. Government's Jet Zero Council and Jet Zero Council working groups. We continue to support His Royal Highness, The Prince of Wales' Sustainable Market Initiative, and were proud to be featured in a documentary on his new channel, RE: TV.

We know we need to rapidly expand production capacity to help the aviation industry meet its carbon neutral goals – LanzaJet has publicly announced its ambition to produce 1 billion gallons of SAF by the end of the decade. With the partnerships announced in 2021, we are confident that they will get it done.

Medical Devices

In 2021, we announced our partnership with carbon transformation company, Twelve, to investigate pathways to transform carbon dioxide into polypropylene. To pursue this partnership, Twelve and LanzaTech received a grant from Impact Squared, a $1.1 million fund that was designed and launched by Barclays and Unreasonable, a catalytic platform for entrepreneurs tackling some of the world's most pressing challenges. The potential of replacing all the world's fossil polypropylene with CO_2-derived polypropylene could reduce carbon emissions by an estimated 700 million metric tons per year.[1] Together we will help the health care industry eliminate emissions by finding novel ways to produce a wide range of commonly used medical devices and products including syringes and IV bags.

[1] https://cen.acs.org/environment/greenhouse-gases/LanzaTech-Twelve- make-polypropylene/99/i33

On the Road to Awesome

In our company, we have many unsung heroes. Every single team member is valued and works with a strong sense of purpose.

It is affirming and appreciated when others recognize the work we are doing together, and this past year we were fortunate enough to be on the receiving end of much recognition, including:

- Overall Winner, Independent Commodity Intelligence Services (ICIS)
- Best Process Innovation Winner, ICIS
- Edison Award - Science Game Changer
- Innovation Award for Renewable Material of the Year, Renewable Materials Conference
- The FIRE Award, ChicagoINNO
- Most Innovative CEO, IL Bioeconomista
- Prix Voltaire International
- AWIS Chicago Scientist of the Month awarded to Shivani Garg
- AWIS Chicago Innovator Award awarded to Mary Pavan

If you want us to do something, just tell us we can't.

There is no doubt 2021 was full of challenges for many, both personally and professionally. Yet throughout, the LanzaTech team proved its resiliency by staying focused and working collaboratively to fulfill our mission.

I am proud to lead a team that continues to be driven by the passionate determination to create a post pollution future.

Today, our team works with greater urgency, because time is no longer a luxury in the race to help companies find climate solutions. For the past several years, I have told our team that I believe the day will come where everything we use will come from recycled carbon. This year, we showed the world what is possible — that waste carbon can be converted into the products we wear, the products we use to clean our clothes and our homes, the fuel for our planes, and other products commonly used throughout our daily lives!

2021 was a transformational year and we look forward to the next phase of the journey on the Road to Awesome.

Welcome to the Post Pollution Future.

Jennifer Holmgren
Chief Executive Officer

@LanzaTech @TodaDogs

Health and Safety

Health and Safety is our top priority globally. We are committed to protecting not only our own employees, but also looking out for our partners and the communities in which they operate. Doing our part to protect people and the environment is core to our mission. Ensuring that our technology is safely deployed and operated is crucial.

0	0	0
Recordable injuries	Lost time injuries	Confirmed workplace COVID-19 transmissions

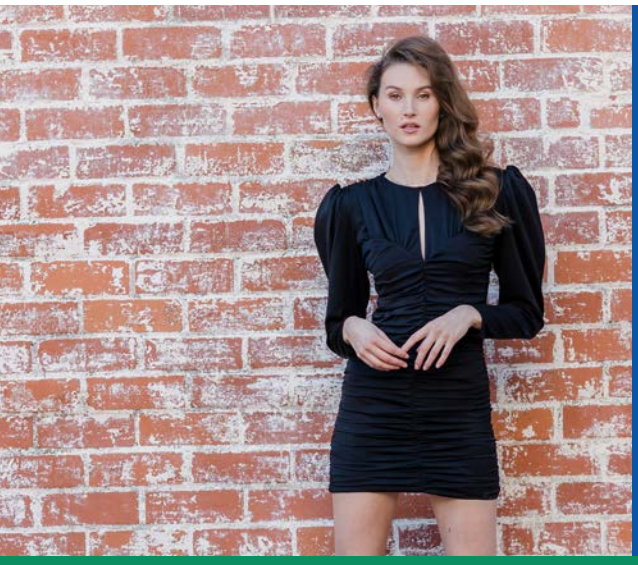
2021 Safety Performance

While we continued to keep the COVID-19 pandemic a high priority for employee health and safety, we renewed focus on improving our existing systems and tools to address the risks and hazards we face across the business. Globally, we completed our third consecutive year without a lost time injury, and had no recordable injuries at LanzaTech in 2021.

Our no-blame safety culture continues to result in strong employee engagement, and we once again achieved year-over-year improvement in employee participation as measured by employee submission of Environment, Health & Safety (EH&S) reports.

As COVID-19 vaccinations became available throughout the world in the first half of the year, our Team rolled up their sleeves. Without implementing a vaccination mandate, LanzaTech achieved an employee vaccination rate above 93%.

Key Events in 2021



Carbon is the New Black

Sustainability is in fashion, and LanzaTech was in vogue when Zara launched a limited line of black dresses in different styles made from carbon emissions that are part of a Capsule Collection. The dresses are the first pieces of clothing produced with LanzaTech's technology to hit the market.

Carbon Emissions Inside and Out

Migros, Switzerland's largest retail company, and its subsidiary, Mibelle Group, produced the world's first PET bottle made from recycled carbon in partnership with LanzaTech. This follows the launch of a range of cleaning products containing LanzaTech ethanol. These products are on sale in Migros supermarkets in Switzerland.

Creating FDA Approved Medical Devices

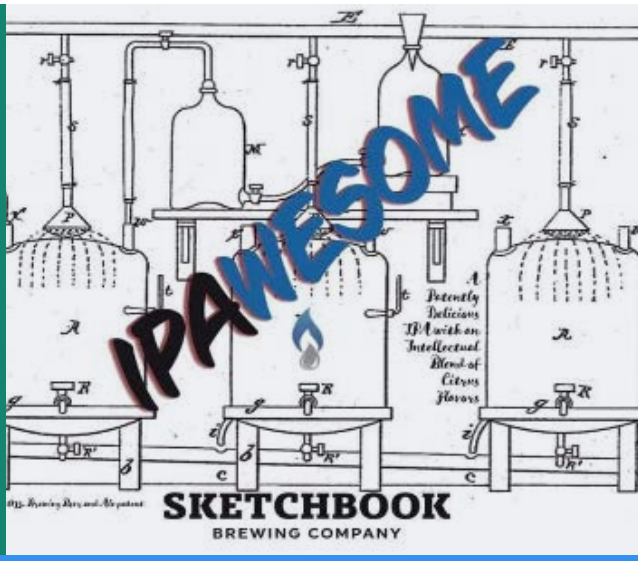
LanzaTech is working with Twelve to create a thermoplastic that can be used to make everything from medical devices to food containers. Twelve will transform carbon dioxide to carbon monoxide and LanzaTech will convert that carbon monoxide to isopropyl alcohol.

Key Events in 2021

Secured 1,000 Patents

Innovation is key to LanzaTech's progress and success in creating our post pollution future. In 2021, we received our 1000th patent on our journey to bending the carbon curve.

Led by the Intellectual Property (IP) Team, volunteers across the company created a celebratory beer in collaboration with local brewery, Sketchbook in Skokie , IL. The name of the brew? IPAwesome.



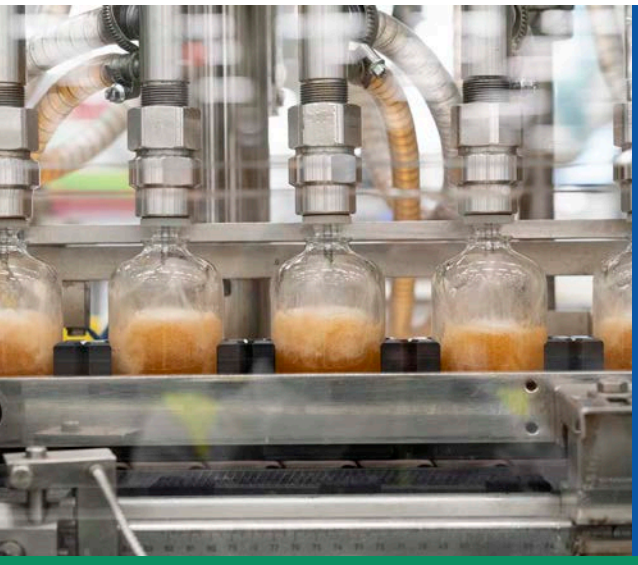
Secretary of Energy Tours LanzaTech's Freedom Pines Biorefinery

U.S. Secretary of Energy Jennifer Granholm and U.S. Senator Jon Ossoff visit the LanzaTech Innovation Hub in Georgia and site of the world's first LanzaJet sustainable fuels plant.

Commercial Plants

Our second commercial plant with Shougang in China began operations in early 2021. Construction continued for commercial plants with Indian Oil Corporation and ArcelorMittal, in India and Belgium, respectively, and for demonstration facilities in Canada with Suncor Energy and in Japan with Sekisui.

Key Events in 2021



Coty Partnership

Coty, one of the world's largest beauty companies, announced a partnership with LanzaTech to become the first company in the fragrance industry to introduce sustainable ethanol in its fragrances.

Gender Parity

In 2021, LanzaTech reached an important milestone in workplace diversity: three science teams achieved gender parity. Though we already have a diverse leadership team and staff, our goal is to continue to hire qualified women and individuals from diverse backgrounds as part of our growing team.

Running On Clouds

Swiss sporting goods company, On, leads supply chain coalition to reshape carbon waste into running shoes by announcing CleanCloud™ a sustainability initiative using carbon emissions to create foam for running shoes. On is the first company in the footwear industry to explore carbon emissions as a primary raw material for a shoe bottom unit.

Key Events in 2021

World-First Laundry Capsule in Market Made From Industrial Carbon Emissions

Unilever partnered with LanzaTech and India Glycols Limited in a pilot program to demonstrate production of a surfactant made from industrial carbon emissions instead of from fossil-fuels. This marks the first time that a cleaning product with a surfactant using captured carbon emissions came to market. The surfactant used in an OMO (Persil) laundry capsule launched in China on April 22nd, Earth Day.

Notable Awards

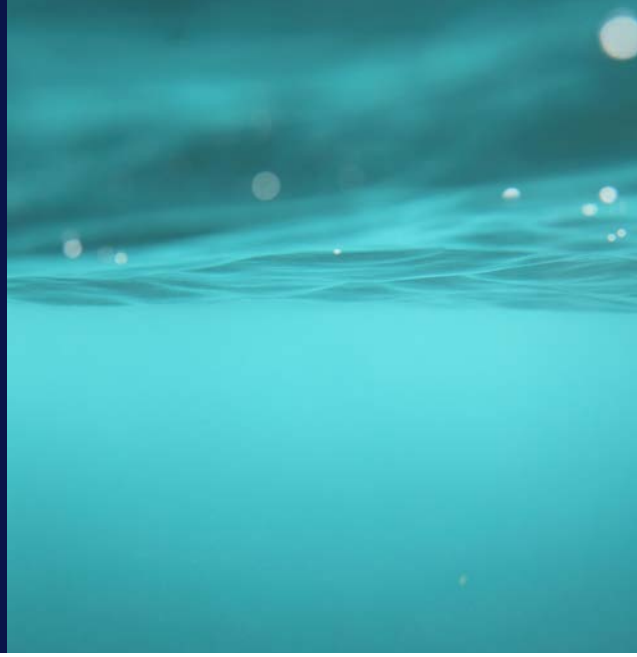
From the Prix Voltaire International to the Edison Award, with additional recognition from the Independent Commodity Intelligence Services, Renewables Materials Conference, IL Bioeconomista, ChicagoINNO and others, LanzaTech's team was recognized for their global achievements.

Hiring Practices

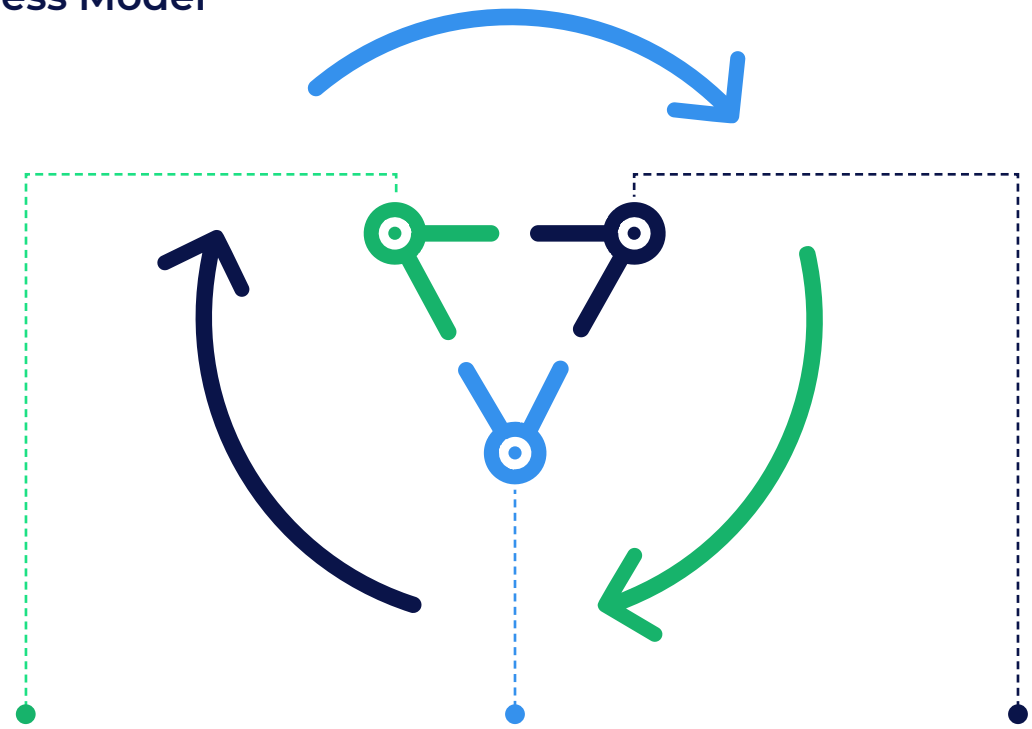
We continued to implement inclusive hiring practices to increase the diversity of our candidate pool with positive results. In 2021, we grew by 45%, including new team members from underrepresented groups.

Integration is at the Core of What We Do.

Our business model stands strong on the back of three complementary offerings.



Our Business Model



Joint Development & Contract Research

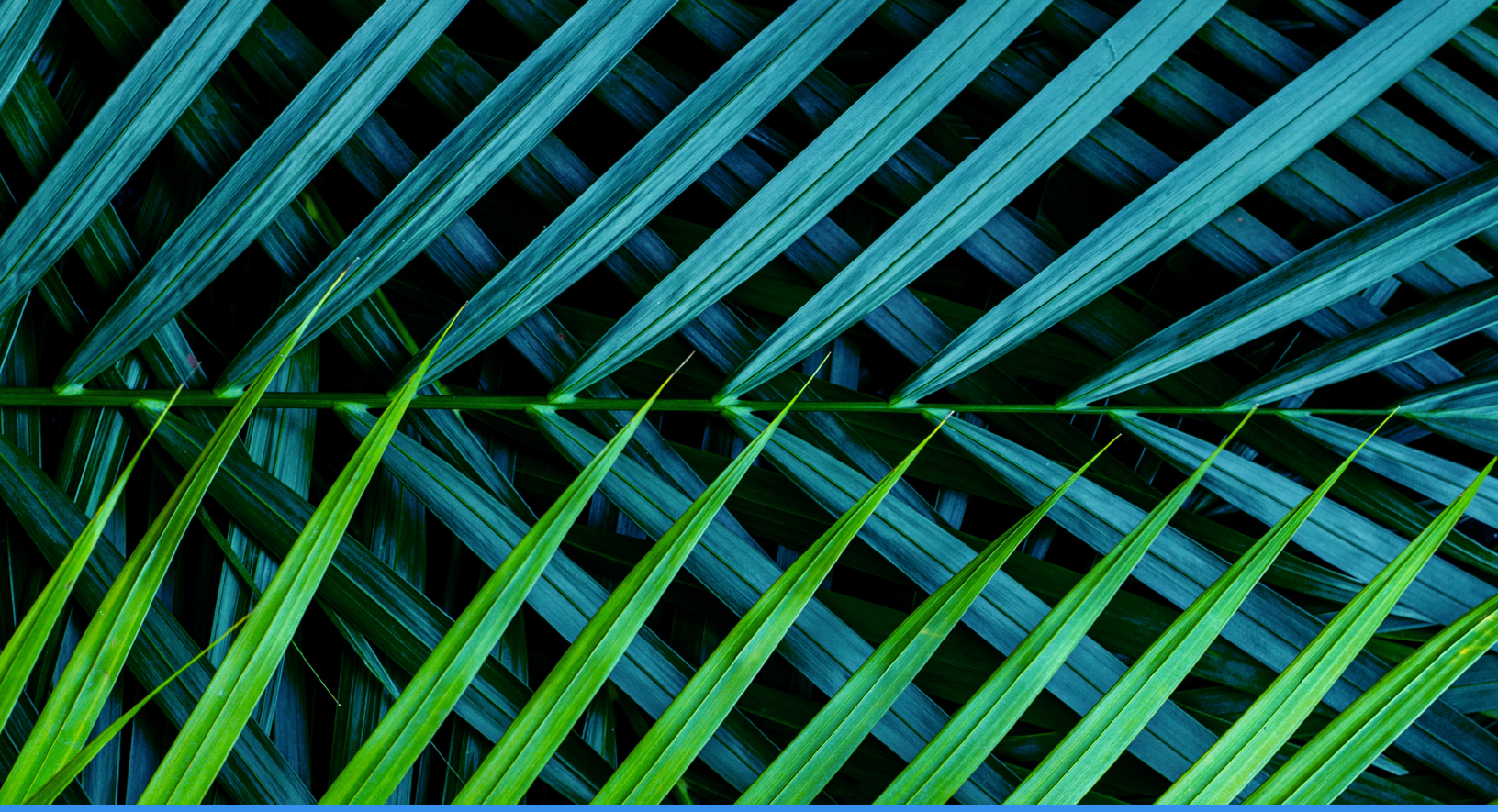
Leveraging our synthetic biology, AI, and machine learning expertise, LanzaTech is able to develop new products, expand addressable product markets, and drive demand for carbon capture and transformation (CCT) facilities.

Licensing of Technology

Our core business combines one-time revenues (equipment, engineering, startup services) and recurring revenues (royalties, microbes, media sales, software licensing) to deploy LanzaTech CCT plants.

CarbonSmart Marketing

Working with conversion partners, we upgrade the offtake from CCT plants and provide our CarbonSmart™ brand partners with sustainable polymers, materials and fuels.



Strategy

A world leader in gas fermentation, we are building a robust form of carbon capture and transformation that enhances the value of waste streams, reduces environmental pollution, and lays the foundation for a circular carbon economy.

Strategy

Capital-Light Business Model

LanzaTech's capital-light, licensing business model enables us to significantly accelerate the deployment of our technology around the globe, creating decarbonization opportunities for customers. Through technology licensing, we are able to rapidly scale and reach a broad range of customers, providing them with a profitable means to reach their sustainability goals. This is evidenced by our robust project pipeline. The licensing model is expected to generate high-margin recurring revenues from licensing royalties, microbe and media sales, monitoring & software services, and CarbonSmart™ related marketing fees over the life of the project, while also providing for upfront, one-time revenues from equipment sales and services during the development and construction phases of these projects.

Drivers: Accelerate technology deployment through repeatable customer base

Commercializing CarbonSmart

Demand is rapidly growing from leading consumer brands for LanzaTech's CarbonSmart chemicals, with 5 new products launched this year alone. With our second commercial plant operational, 7 additional plants under construction, and additional plants in development, we estimate roughly 600k MT (200M gallons) of future ethanol supply coming on-line in the near term. These quantities will allow us to provide much-needed volume to meet the massive and immediate demand from our partners.

Drivers: Increased consumer demand

Expanded Feedstocks

We expanded our commercial portfolio this year with the start-up of a ferroalloy off-gas facility. Coupled with steel mill off-gas facilities and our broader project pipeline, our feedstock portfolio has expanded to include multiple gaseous and solid feedstocks (industrial and refinery off-gases, municipal solid waste (MSW), and biomass/agricultural residues). These feedstocks demonstrate the broad application of our technology and reinforce our core belief that a low carbon future can be unlocked using available above ground waste carbon.

Drivers: Grow customer mix

Scale Up for Growth

Each member of the team brings new capabilities, talents, and knowledge to support our continued growth and accelerate the deployment of the LanzaTech platform. Our work in the lab – starting with our synthetic biology team – coupled with our engineering capabilities, provides the foundation necessary to accelerate growth. This year saw the start of our 2nd commercial facility and a record number of engineering and construction starts on multiple feedstocks around the globe. Every day we strive to improve our processes through automation, standardization, and modularization across all areas of the business.

Drivers: Expand capabilities and process efficiencies to drive growth and quickly scale

Innovation

Innovation and technology are the heart of our company. We work tirelessly to develop and improve sustainable and circular solutions, with over 60% of our personnel dedicated to innovative research, modeling, process development, and engineering.

Key innovations in 2021

131 granted patents received and 160 new patent applications, including first grants in patent families for microorganisms producing biodegradable plastic and the integration of electrolysis or gasification with gas fermentation.

Delivered our next-generation bioreactor, and kicked off a second project to scale-up further; all to demonstrate increased efficiency in our process and lower production costs.

Provided high-purity fermentation products (ethanol, IPA, and acetone) and upgraded products (e.g. PET) to over 20 customers, as well as produced our first ethanol sample derived directly from CO_2.

Built new infrastructure and uploaded over two million hours of fermentation data to train machine learning models for process improvement.

Spotlight on Synthetic Biology

Synthetic biology allows us to re-program our biocatalyst for the synthesis of new and increasingly complex molecules, expanding the range of products that can be made through the LanzaTech process while using the same feedstocks and infrastructure.

Over the past decade, LanzaTech has developed a unique Synthetic Biology platform. 15 years ago, gas fermenting microbes such as LanzaTech's proprietary biocatalyst were considered genetically inaccessible. We can now modify them at an unprecedented pace and in an automated fashion using our biofoundry. We have also developed a range of computational models and AI algorithms to guide product discovery and development.

Through 2021, we have designed and modeled over 500 pathways and were able to demonstrate direct synthesis of over 100 new molecules from gas via engineered variants of our flagship biocatalyst in the lab. This includes molecules that typically are not produced by microbes in nature. For example, in a research breakthrough with our partners from BASF, we were able to demonstrate for the first time, direct production of n-octanol from gas at laboratory scale using an engineered version of our biocatalyst.[2]

The first wave of our directly-synthesized new products, acetone and isopropanol, has already been optimized to the target performance level and scaled up to pilot scale at our Freedom Pines site.

In 2021, we made significant progress optimizing performance of several other molecules in our pipeline through joint development projects with strategic customers. In parallel, we established new genome engineering tools and workflows[3] to enable the development of optimized chassis strains with higher flux to new products or carbon-optimized conversion, for which we are partnering with ARPA-E.[4]

With a broad portfolio of new products in the pipeline, we envision a world where customers use the same production facilities, same feedstock, and same process to produce a variety of different products based on market demand and value.

[2] www.basf.com/global/en/media/news-releases/2021/05/p-21-206

[3] www.coesb.com.au/using-genes-to-improve-conversion-of-greenhouse-gases

[4] www.biomassmagazine.com/articles/18020/lanzatech-awarded-4-1-million-from-arpa-e

Businesses in 2021

Biorefining Platform

The primary driver of our business model is the licensing of our biorefining platform enabling carbon capture and transformation. Our licensing model generates revenues from engineering and other services, equipment sales, as well as long term recurring revenues in the form of licensing and royalty fees associated with the access to our technology, while our partners own and operate the gas fermentation plants. This capital-light model enables us to concurrently partner with numerous customers across geographies and feedstocks to build customer-owned gas fermentation facilities, accelerating the spread of our technology platform.

In select circumstances, we leverage our relationships and project development expertise to develop, or sponsor select projects with partners where we believe our participation in the ownership, operation, and off take of the gas fermentation plant can create additional value. We believe this model has the potential to accelerate the development of new feedstocks and product markets, while also allowing us to capture additional economic upside.

Contract Research & Joint Development

LanzaTech leverages our computational and synthetic biology capabilities to develop new biocatalysts able to produce a diverse range of products in collaboration with our partners. These collaborations expand our addressable product markets, while concurrently generating demand for additional biorefineries and commercial-scale biorefinery production.

CarbonSmart

LanzaTech and its partners produce and market CarbonSmart™ products, helping major brands reach their sustainability goals and driving the circular economy by providing them with drop in, recycled carbon alternatives to key products in their supply chains. CarbonSmart materials are produced by purifying or converting the ethanol (or other chemicals) produced by the LanzaTech process into other products. In this space, LanzaTech partners with various downstream conversion companies and consumer goods companies to bring these products to market at commercial volumes.

Multiple Plants, Feedstocks and Products

2 Commercial Plants **Operating**

7 Commercial Plants in **Construction**

(to be completed in 2022)

7 Commercial Plants in **Engineering**

Feedstocks Represented

Steel & Ferroalloy Gas

MSW

Refinery Gas

Biomass

Biogas

Regions Represented

Australia
Canada
China
Europe
India
Japan
South Africa
United States

Partner Investment

$800M

Estimated Total Installed Capacity[5]

~600,000 MTPA

(200M GPY)

Anticipated Carbon Captured Annually[5]

~1,000,000 MT

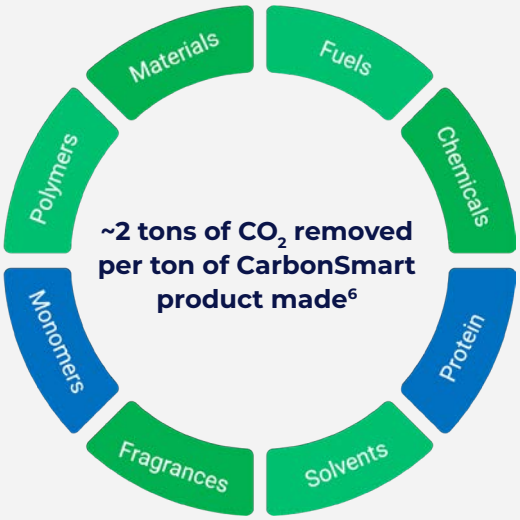
[5] Represents capacity and carbon captured by all plants above

Waste carbon pollution is humanity's greatest threat. LanzaTech has invented a technology significant enough to meet the challenge.

Human-induced climate change is impacting every habitable region of the planet with climate extremes, droughts, wildfires, and tropical storms. Minority, low-income, and tribal peoples are disproportionately impacted by climate change and environmental pollution. We acknowledge this disparity and provide a solution that goes beyond CO_2.

Fossil carbon is in everything we use in our daily lives: fuels and power, our clothes, cosmetics, toys, and home goods. These products originate in refineries fed by petroleum and natural gas. We envision vast, global waste resources from industry, society, and agriculture displacing virgin fossil resources as the basis for the materials, chemicals, and fuels upon which society relies.

Being CarbonSmart



In a CarbonSmart™ world, carbon waste is transformed to produce nearly everything we use in our daily lives. LanzaTech generates strong ROIs for partners, accelerating their decarbonization and defossilization efforts.

[6] LanzaTech management

Products with CarbonSmart

$1 Trillion Addressable Market[7]

Potential for >1 billion tons/year of product from waste feedstocks

[7] Per Grand View Research (2019), Allied Market Research (2018), The Business Research Company (2019), Technavio (2019), Fortune Business Insights (2019) and Knowledge Sourcing Intelligence (2020).

Where Does Your Carbon Come From?

LanzaTech's proven technology enables a closed loop, circular carbon economy where carbon is reused rather than wasted. Through technology designed to touch all points of the carbon supply chain, we offer a profitable solution to decarbonize carbon intensive businesses, while providing sustainable raw materials to make the things we use in our daily lives.

In 2021, LanzaTech launched five new campaigns with major brands that partnered with us to demonstrate and bring to the market products made from the carbon oxides in industrial emissions. Our ethanol has been the feedstock for a diverse array of consumer products, most available on shelves today.

Every waste resource — including CO_2 — can become the things we use in our daily lives

ZARA

Taking Flight

Rethinking Carbon

10%

The aviation industry has a goal to use 10% Sustainable Aviation Fuel (SAF) by 2030. This translates to around 10B gallons of production. We are working with LanzaJet, a company we founded and spun out in 2020, to help achieve this goal.

€20M

Grant funding from the EU's Horizon 2020 program for the FLITE consortium led by SkyNRG. FLITE will convert waste-based ethanol to SAF at a scale of over 30,000 tons/year and is a major milestone on the path to net zero emissions for the aviation industry.

LanzaTech has over a decade of experience scaling up, validating and qualifying the LanzaJet™ alcohol-to-jet (ATJ) technology. The core technology development was completed by LanzaTech in conjunction with Pacific Northwest National Lab (PNNL) with support from the U.S. Department of Energy (DOE). LanzaTech spun-out LanzaJet in 2020 into an independent entity to accelerate the commercialization of the ATJ technology.

LanzaTech UK, among other companies, was selected for funding through The UK Department for Transport's Green Fuels, Green Skies (GSGF) competition to advance the production of Sustainable Aviation Fuel (SAF). We were awarded two projects supported by British Airways and Virgin Atlantic:

Project DRAGON (Decarbonizing and Reimagining Aviation for the Goal Of Netzero) will undertake the Front-End Engineering Design (FEED) of a facility in Port Talbot, South Wales, that will produce more than 30M gallons/year of ATJ Synthetic Paraffinic Kerosene (ATJ-SPK).

Project AtmosFUEL feasiblity study with cleantech company, Carbon Engineering, to create sustainable aviation fuel (SAF) out of atmospheric carbon dioxide (CO_2).

In the United States, we are working with the DOE and SkyNRG Americas on **Project LOTUS** (Landfill Off-gas To Ultra-low carbon intensity SAF) to design, build, operate, and maintain a production facility that will convert raw landfill biogas (LFG) into sustainable aviation fuel.

In addition, we are working with the DOE's Argonne National Laboratory (ANL) to build and operate a pre-pilot facility to produce SAF made from biogenic waste CO_2 and renewable hydrogen (H_2) at our Freedom Pines facility in Georgia.

In Europe, we announced a unique partnership with Vattenfall, SAS, and Shell to explore synthetic sustainable aviation fuel production from CO_2 in Sweden.

Clean Air, Decent Work, and Justice for ALL

LanzaTech's products reduce our reliance on virgin petroleum products and reduce lifecycle GHG emissions. Volumes of water are saved as our protein co-product can displace water-intensive animal feed ingredients. When our ethanol is fixed into products or durable goods, this carbon is sequestered away for generations.

Our process takes on human health inequalities by reducing criteria pollutants from waste gasses including sulfur dioxide (SO_2), nitrogen oxides (NO_x), and particulate matter that are byproducts of fossil fuel combustion.

Distributed manufacturing with gas fermentation can provide employment opportunities near feedstocks: agricultural biomass, urban and rural municipal solid waste, industrial factories, and rural corn ethanol facilities.

CO_2 abated

Total

>150,000 MT

Sustainable ethanol produced

Total

>30M Gallons

Jobs created

Total

>200

Supporting the United Nations Sustainable Development Goals

We are committed to supporting the UN Sustainable Development Goals (SDGs) and understand their importance in creating the framework for sustainable and equitable business practices.

LanzaTech Mission

We provide an affordable, sustainably produced fuel to decrease reliance on fossil fuel for transportation. Our technology utilizes CO_2 and H_2 as a feedstock generating demand for renewable energy at a large scale.

The core of our business is enabling the circular carbon economy. Through our process, we are able to recycle and valorize carbon-rich/hard-to-abate emissions and waste into sustainably produced fuels and chemicals — the building blocks of CarbonSmart™ products, which will provide end consumers with alternative products that have a lower carbon footprint.

Our sustainably-produced, low-carbon fuels and chemicals offer an overall carbon savings compared to fossil-derived products. Besides GHG emissions, our technology also has a positive impact on water and land use, fertilizer/runoff, and waste disposal.

Feedstock

Our process creates economic drivers for capturing waste gases and valorizing them instead of emitting them into the atmosphere. We are able to reduce GHG emissions, particulate matter, and carcinogens produced from the burning of agricultural waste and incineration of MSW.

Process

Through growth in our synthetic biology platform and capabilities, we are improving the performance of our ethanol producing biocatalyst, as well as developing 2nd generation products to further reduce our carbon footprint and overall operating costs. In addition, we have developed a next generation bioreactor which is more efficient.

From an LCA perspective, our technology produces products that have a competitive sustainability profile regarding land use, terrestrial toxicity and eutrophication, as well as overall biodiversity loss.

Products

Unlike traditional biofuels which rely heavily on farmland, our ethanol production does not require arable land nor does it compete with food production. An additional co-product of our process is protein which can displace water-intensive ingredients used for animal feed.

Internal

Safety is our top priority. We are committed to fostering a safe, inclusive, and decent workplace for our employees to reach their full potential. Employee well-being is paramount which is reflected through our safety program, benefits package and community outreach efforts.

Diversity, Equity & Inclusion

In 2021, LanzaTech produced its first Diversity, Equity & Inclusion (DEI) plan to communicate how our ideals rooted in DEI resonate throughout our company and the work we do. LanzaTech aims to empower individuals from all groups and identities to become engaged in projects and succeed through initiatives and outreach, policies, training, and recruitment practices.

Women at Work

LanzaTech is a women-led organization headed by CEO Dr. Jennifer Holmgren, an immigrant from Colombia. 38% of the leadership team is female. Women Vice Presidents lead our Engineering, Science, Chemicals and Hydrocarbon Fuels Technology, Government Relations, and Europe activities. Three science teams have reached gender parity.

Initiatives and Outreach

LanzaTech's DEI group, Blend, engaged We All Code, a local nonprofit working to promote diversity in STEM. Blend also launched LanzaTech's first mentoring program, and organized awareness campaigns on racial and gender diversity within the company. We recycled aluminum cans at Freedom Pines Biorefinery, donating proceeds to the local Shriners Club and Shriners Hospitals for Children. Our Green Group organized a volunteer day for employees to restore a local forest preserve.

DEI Goals

LanzaTech will encourage qualified underrepresented STEM groups to be project leads, develop relationships with STEM groups at local junior high and high schools, increase diversity in our candidate pool by recruiting from organizations and consortiums focused on women, minorities and other underrepresented groups.

blend
Inclusion-Diversity-Equity

9 Group Discussions

Black Lives Matter, National Disability Awareness Month, building trans-affirming workplaces, women in the workplace

15 Company-wide Communications

Celebratory events included: Women's Equality Day, Indigenous Peoples' Day, Veterans Day, Martin Luther King Jr. Day

3 Newsletters

Celebrating Black History Month, International Women's Day, and AAPI Heritage Month

2 Virtual Panel Discussions

Regarding Women in the Workplace, and examining the Intersection of Sustainability & Equity (with Green Group)

2 Fundraisers

For Black Lives Matter and AIDS Run & Walk Chicago

Education

2020 election information, DEI calendar, and encouraging use of personal pronouns to promote inclusivity and allyship

Board of Directors

Dr. Mahpuzah Abai

CEO, PETRONAS Technology Ventures Sdn Bhd; Head of Technology Management & Commercialisation, PETRONAS

Dr. Abai has 25 years experience in the Oil & Gas industry, managing & leading technology and commercialization projects. She has pioneered the development and commercialization of new chemistries for PETRONAS applications. She previously led the Fluid Technology Solutions team which provides world-class fluids for PETRONAS lubricants, fuels, and motorsports.

Nigel Gormly

Director, Waihou Capital, Rep. NZ Super Fund

Nigel Gormly brings a wealth of investment experience focused on climate solutions and large scale growth companies, including from the New Zealand Super Fund where he previously led the International Direct Investment team. He has broad governance experience across a range of sectors and stages of development and currently serves as a director for View, Inc. and CTF Pledge Pioneers. Nigel has served as a Director for LanzaTech since 2014 and has chaired the Audit Committee since 2015.

Dr. Jennifer Holmgren

CEO, LanzaTech

Prior to LanzaTech, Jennifer founded and led, as VP/GM, UOP's (Honeywell) Renewable Energy and Chemicals Division. She has over 30 years of commercialization experience.

Jim Messina

CEO, The Messina Group

Jim Messina is the CEO of the Messina Group, which provides strategic consulting to political campaigns, advocacy organizations and businesses. He was also Campaign Manager of Barack Obama's 2012 re-election campaign and Deputy Chief of Staff to President Obama.

Dr. SSV Ramakumar

Director R&D, Indian Oil Corporation

Dr. Ramakumar has three decades of R&D experience in the downstream hydrocarbon sector specifically in the areas of lubricant technology and refinery process research, including catalyst development and alternative sources of energy. He successfully spearheaded many "concept to commercialization" projects and is overseeing the establishment of one of the world's largest renewable energy research campuses. He has to his credit 50 granted patents and around 150 research publications in peer reviewed journals.

Bo Ren

Managing Director, Sinopec Capital

Bo Ren is managing director of Industrial Investment Department at Sinopec Capital, with extensive experience in renewable energy, green chemicals, bio-materials, advanced manufacturing investment business.

Prior to joining Sinopec Capital, he worked at CITIC SECURITIES as director of Investment Banking Committee after graduating from Tianjin University.

Board of Directors

Gary Rieschel

Founder and Managing Partner, Qiming

Gary founded several venture capital firms including SoftBank Venture Capital, SAIF Partners, and Qiming Venture Partners. Qiming now has $7b under management.

Dr. Sean Simpson

Founder and CSO, LanzaTech

Sean held research scientist roles at AgriGenesis (NZ) and Japan International Research Centre for Agricultural Sciences (Tsukuba, Japan), prior to founding LanzaTech in 2005.

Dr. Anders Spohr

Senior Partner, Principal Investments, Novo Holdings

Anders is responsible for bio-industrial investments at Novo Holdings. Prior to joining Novo Holdings, he previously held executive positions at Leo-Pharma and Novozymes.

Yasuhiro Uchida

General Manager, Mitsui

Yasuhiro is the general manager of Mitsui's NexGen Energy Division. He has had extensive industry experience in the Energy business, especially in the oil & gas investment business, such as E&P and LNG. He began his career in Mitsui & Co., Ltd. in 1994 shortly after graduating from Tokyo University (Mineral Development Engineering).

Dr. Roger Wyse

Managing Partner, Spruce Capital

Dr. Wyse is Co-Founder & Managing Partner at Spruce Capital Partners, a venture management company with $320 million in AUM investing in companies with disruptive solutions to improve sustainability, enable the bioeconomy and mitigate climate change. Previously, he was President and COO Biogreentech at Burrill & Company. Before his venture career he was a renowned scientist and academic administrator serving as Dean, College of Agriculture & Life Sciences, UW Madison.

Scientific Advisory Board

Prof. Dr. Michael Jewett

Dr. Jewett is the Charles Deering McCormick Professor of Teaching Excellence, Walter P. Murphy Professor of Chemical and Biological Engineering, and director of the Center for Synthetic Biology at Northwestern University. He is also an Institute Fellow at the Northwestern Argonne Institute for Science & Engineering. Dr. Jewett's lab seeks to re-conceptualize the way we engineer complex biological systems for compelling applications in medicine, materials, and energy by transforming biochemical engineering with synthetic biology.

Prof. Dr. Ramon Gonzalez

Dr. Gonzalez is a Professor and Florida World Class Scholar in the Department of Chemical, Biological and Materials Engineering at the University of South Florida (USF) where he leads the laboratory for Metabolic Engineering and Biomanufacturing. He is also the Editor-in-Chief of the Journal of Industrial Microbiology and Biotechnology (JIMB). Before joining USF, Dr. Gonzalez was a Professor in the Departments of Chemical & Biomolecular Engineering and Bioengineering at Rice University and the Founding Director of Rice's Advanced Biomanufacturing Initiative, and from 2012 to 2015 served as Program Director with the Advanced Research Projects Agency-Energy (ARPA-E) of the U.S. Department of Energy.

Prof. Dr. Huimin Zhao

Dr. Zhao is the Steven L. Miller Chair Professor of chemical and biomolecular engineering, and professor of chemistry, biochemistry, biophysics, and bioengineering at the University of Illinois at Urbana-Champaign (UIUC). He received his B.S. degree in Biology from the University of Science and Technology of China in 1992 and his Ph.D. degree in Chemistry from the California Institute of Technology in 1998 under the guidance of Nobel Laureate Dr. Frances Arnold. Prior to joining UIUC in 2000, he was a project leader at the Industrial Biotechnology Laboratory of the Dow Chemical Company. He was promoted to full professor in 2008. Dr. Zhao has authored and co-authored over 340 research articles and over 30 issued and pending patent applications with several being licensed by industry.

Prof. Dr. Rolf Thauer

Dr. Thauer is the Emeritus group leader at the Max Planck Institute for Terrestrial Microbiology for which he was one of the founding directors in 1991. Author of over 400 publications and the recipient of numerous awards, including the Gottfried Wilhelm Leibniz Prize by the Deutsche Forschungsgemeinschaft in 1987. He holds a Ph.D. degree in biochemistry from the University of Freiburg, Germany. He has more than 50 years of research experience in biochemistry, physiology and ecology of anaerobic bacteria and archaea with a focus on the enzymes and coenzymes involved in the energy metabolism of Clostridia.

Prof. Dr.-Ing. Ralf Takors

Dr. Takors is heading the Institute of Biochemical Engineering (IBVT) at the University of Stuttgart. Main research interests are systems metabolic engineering, synthetic biology and biochemical engineering to develop novel bioprocesses from lab to productions cale. Wet-lab activities are supported by intensive modelling activities comprising genome scale stochiometric modelling, metabolic flux analysis, gene regulatory networks, and bioreactor modelling using compartmented approaches and computational fluid dynamics.

LanzaTech Leadership Team

Executive Leadership

Dr. Jennifer Holmgren

CEO

Geoff Trukenbrod

CFO

Freya Burton

Chief Sustainability Officer

Mark Burton

General Counsel

Research and Engineering

Dr. Sean Simpson

Founder and CSO

Dr. Zara Summers

VP Science

Dr. Michael Köpke

VP Synthetic Biology

Research and Engineering

Dr. Johanna Haggstrom

VP Chemicals and Hydrocarbon Fuels Tech

Julie Zarraga

VP Engineering

Dr. Robert Conrado

VP Eng., Design, and Development

LanzaTech Leadership Team

Business Development

Babette Pettersen

VP Europe

Xu Li

Managing Director Asia Pacific

Jim Woodger

Managing Director UK

Sangeet Jain

Director/Country Head India

Finance

George Dimitrov

VP Finance

Government Relations

Dr. Laurel Harmon

VP Government Relations

Tom Dower

VP Public Policy

Dr. John Holladay

VP Government Programs

People & Infrastructure

Nilesh Kumar

Chief Information Security Officer

Carl Wolf

VP Operations

Ellie Wood

Chief of Staff to the CEO

2021

Financial Performance

2021 was a year filled with commercial advancements and operational milestones, including growth across all three areas of our business model – Licensing of our Carbon Capture and Transformation Technology, CarbonSmart™ Product Marketing, and Joint Development and Contract Research.

Continued Revenue Growth

LanzaTech's total revenue grew approximately 40% from 2020, to $26.2 million. In comparison, our operating expenses increased at a slower rate of approximately 32%, to $61 million, as we continued to expand our headcount and technological capabilities.

This revenue growth was driven by a 56% increase in revenue associated with Contract Research and Joint Development Agreements to $13.9 million, and a 25% increase in carbon capture and transportation revenue, within which, licensing revenue grew 71% to $2.7 million and engineering and other services grew 16% to $9.6 million. LanzaTech's gross profit increased to $10.9 million, with a higher gross margin of 42% in comparison to 2020. Overall, our net loss increased from $36.9 million to $45.8 million as we continued to invest in expanding our team, capabilities, and global reach.

Strong Balance Sheet

We completed two significant capital raises in 2021, including our Series F, in early 2021, which brought our Series E/E-1/F raise to $201.6 million in total. Subsequently, we issued a Simple Agreement for Future Equity (SAFE) contract in December 2021 with proceeds of $30 million to the Company. We ended 2021 with no debt on the balance sheet, having pursued and received forgiveness of the Company's Paycheck Protection Program loan received under the CARES Act. LanzaTech's expansion of general research, demonstration, synthetic biology, and operations facilities incurred nearly $5.8 million in capital expenditures in 2021.

Our cash and cash equivalent position at the end of 2021 was $128.3 million, compared to $60.5 million at the end of 2020, which provides sufficient liquidity to fund LanzaTech's operations.

2022 Outlook

We anticipate continued acceleration of our commercialization activities and deployment of our technology across new feedstocks, geographies, and integrations. Additionally, we anticipate continuing to develop relationships with new commercial partners, expanding opportunities with existing commercial relationships, developing new product offerings, and driving innovation across all our process technologies.

We have incurred operating losses since inception and expect to continue to incur losses and negative cash flows from operations at least through 2022. While we expect meaningful revenue growth in 2022, we also expect our expenses to rise in tandem. In March of 2022, we announced our intent to enter into a definitive merger agreement with AMCI Acquisition Corp. II (Nasdaq: AMCI), a Special Purpose Acquisition Corporation (or SPAC); upon completion of the transaction, the combined company is expected to trade on Nasdaq under the ticker symbol “LNZA”. We expect that the transaction will allow us to raise additional capital and enter the public markets. Proceeds from the transaction are expected to fund acceleration in our commercial operations, capital requirements associated with development projects in which we have chosen to participate with partners, and continued technological innovation.

LanzaTech

LanzaTech.com