

# **LanzaTech Global, Inc. (LNZA) Q2 2024 Earnings Call Transcript**

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**Body**

LanzaTech Global, Inc. (LNZA)

Q2 2024 Earnings Call Transcript

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Company Participants

Kate Walsh - VP, Investor Relations & Tax

Jennifer Holmgren - Chief Executive Officer

Geoff Trukenbrod - Chief Financial Officer

Conference Call Participants

Jeffrey Campbell - Seaport Research Partners

Thomas Meric - Janney Montgomery

Jason Gabelman - TD Cowen

Steve Byrne - Bank of America

Presentation

Operator

Good morning, everyone, and welcome to today's LanzaTech Global Inc. Second Quarter 2024 Earnings Conference Call. At this time, all participants are in a listen-only mode. Later in the call, there will be a question-and-answer session. [Operator Instructions] Also today's call is being recorded and I will be standing by if you should need any assistance.

And now at this time, I'll turn things over to Kate Walsh, Vice President of Investor Relations & Tax. Please go ahead.

Kate Walsh

Good morning and thank you for joining us for LanzaTech Global Inc second quarter of 2024 earnings conference call. On the call today, I'm joined by our Board Chair and CEO, Dr. Jennifer Holmgren and our CFO, Geoff Trukenbrod.

Earlier this morning, we issued a press release with our second quarter 2024 financial and operating results, as well as an investor presentation summarizing the company's performance and key operational highlights for the quarter. Please also reference our quarterly report on Form 10-Q for the quarter-ending March 31, 2024, filed today. Both our press release and results summary investor presentation can be found in the Investor Relations section of our website at www.lanzatech.com .

Before we begin, I'd like to direct you to the disclaimers in the front of the company's investor presentation and remind you that today's call may include forward-looking statements. Any statements describing our beliefs, goals, plans, strategies, expectations, projections, forecasts, and assumptions are forward-looking statements. Please note that the company's actual results may differ from those anticipated by such forward-looking statements for a variety of reasons, many of which are beyond our control. Please see our recent filings with the Securities and Exchange Commission, which identify the principal risks and uncertainties that could affect our business, prospects, and future results. Unless required by law, we assume no obligation to update publicly any forward-looking statements.

In addition, we will be discussing and providing certain non-GAAP financial measures today, including adjusted EBITDA. Please see our earnings release and filings for a reconciliation of these non-GAAP measures to their most directly comparable GAAP measure.

Today's call will begin with remarks from Jennifer, providing an overview of our performance, our recent financial results and our recent outlook. Jeff will then review in greater detail our financial results and financial outlook. Jennifer will conclude with a few closing remarks before we open up the line for questions.

With that, I'd like to turn the call over to Jennifer.

Jennifer Holmgren

Thank you, Kate, and thanks to everybody joining us today. We appreciate your ongoing interest in and support of LanzaTech. I'd like to begin today by sharing several highlights from the second quarter, as well as an update on our key projects and future outlook. I will then pass it over to Jeff to give a more detailed view of our financial performance and position.

On slide four of our latest investor presentation, we have outlined the key takeaways from this quarter, and I'll summarize it all with one word, progress. We're making progress on several fronts and I'm proud of what our team has accomplished. First, we delivered solid financial results for the second quarter, which were ahead of expectations. Revenue was 17.4 million for the quarter, representing 35% growth year-over-year. Adjusted EBITDA loss was 17.8 million for the quarter, a significant improvement relative to the prior year and to last quarter. These strong results were driven by our core biorefining licensing revenue and in particular revenue from engineering services and our arrangement with LanzaJet, which allows them to exclusively sublicense our alcohol to jet technology.

Second, we continue to execute on all key aspects of our business, including biorefining projects, joint development and contract research engagements, and CarbonSmart initiatives. Let me give you a few examples. One, our carbon dioxide conversion project with NTPC in India resulted in equipment revenue associated with the order of long lead items, enhancing our confidence that this power to ethanol project will enter the construction phase during the second half of this year. Additionally, we moved several new projects to early stage engineering across multiple feedstocks and geographies, showing the flexibility of our technology. Adding to that, our CarbonSmart business continued to be active with existing customers such as Lululemon, REI and Cody [Phonetic], bringing new products online and our commercially available CarbonSmart yarns becoming part of brand supply chains rather than only being used in limited one-off collections.

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IKEA recently disclosed a long standing collaboration with us to develop new manufacturing routes to their products from industry emissions, specifically focusing on polypropylene materials. And we also completed our first pure play CarbonSmart fuel sales. Putting the right licensing structure, partners and supply chain infrastructure in place required significant effort, so we're very happy to have reached this milestone. These direct fuel sales build on our existing CarbonSmart business that requires our ethanol to undergo further processing or purification before being supplied to our textile, chemical and plastics customers. Overall, we're pleased to see such tremendous progress this quarter in our base business.

Moving to the third highlight of this quarter, we increased our ownership in LanzaJet by nearly two-thirds to 37%, up from 23% without the need for any capital contribution for LanzaTech. LanzaJet and the exciting work it is doing to advance the sustainable aviation fuel market continues to show substantial progress on multiple fronts while benefiting from continued significant macro tailwinds.

Fourth, we're excited to announce a $40 million investment from a new investor, Carbon Direct Capital. This strategic capital raise will support our path to profitability and support our working capital needs as we further scale our business. And fifth, we continue to expect revenue for the year to be between $90 million to $105 million with second house revenue being heavily weighted to the fourth quarter. Jeff will provide more details on our latest financial outlook, including greater detail on the breakdown between the third and fourth quarter in his remarks.

Now for a few more details on these highlights, I mentioned a new project with NTPC, which is India's largest power generation utility company. NTPC and Jakson Green, their engineering, procurement and construction partner, are planning to use our second generation bioreactor to biorefine carbon dioxide with green hydrogen to produce valuable fuels, chemicals and raw materials. Having proven we can use carbon dioxide in a refinery setting with Indian Oil Corporation, we're expanding that ability with NTPC to a feedstock stream where CO2 is the only carbon source. In fact, LanzaTech can convert CO2 with the addition of hydrogen, ideally made from green energy in our carbon capture and utilization platform. NTPC's carbon recycling facility is designed to showcase the readiness of LanzaTech's technology for regions that are transforming the power sector and in turn enabling the widespread production of sustainable fuels, chemicals and raw materials from CO2. This is an inspiring example of the elusive power to X made real.

As mentioned earlier, we continue to realize the value of our LanzaJet shareholding through our increased ownership in and continued collaboration with LanzaJet. By way of background, this increase in LanzaJet ownership was always part of the plan that we put in place for the commercialization of the alcohol to jet or ATJ process when we spun LanzaJet off into a standalone business four years ago. Our agreement with LanzaJet allowed them to develop the world's first commercial ATJ plant and allows them to further sub-license the ATJ technology that was originally developed by LanzaTech in collaboration with the Pacific Northwest National Lab and the US Department of Energy.

With LanzaJet's success in licensing the ATJ technology in June, we received the first of what is anticipated to be a total of three additional tranches of LanzaJet common stock. The first tranche received in June increased our landslide jet ownership to 37%, up from 23% and was related to a sub license issued to Jet Zero Australia. Jet Zero Australia is developing Australia's first ethanol to sustainable aviation fuel plant and LanzaJet's Freedom Pines Fuels facility located in Soperton, Georgia is the reference plant for the project.

We expect to receive the other two tranches of shares as LanzaJet further commercially sublicenses our technology, which is projected to result in an ownership stake in LanzaJet above 50%, subject to dilution from potential LanzaJet equity financing events. Given the projects and opportunities LanzaJet is working on, we have a line of sight to upcoming sublicensing events and expect an additional equity tranche within the next six months, with the third expected during 2025. Adding to the benefit of our increased ownership percentage is that we believe LanzaJet continues to grow its own enterprise value. This is due to the upcoming production of the first ever commercial quantities of SAF from an APJ process at LanzaJet's Freedom Pines Fuels facility, from the development of an execution on a robust pipeline of APJ sublicensing opportunities, and from the recent additions of multiple world-class co-investors including Airbus, Groupe ADP, Microsoft Climate Innovation Fund, MUSG, Southwest Airlines; LanzaJet is growing quickly.

Commercially, LanzaTech and LanzaJet are actively collaborating on several projects whereby commercial partners are expected to deploy both the LanzaTech and LanzaJet platforms in order to convert local waste resources to drop in sustainable aviation fuel. The sustainable aviation fuel produced through the combined processes is capable of reducing aviation emissions by at least 85%, depending in part of the waste based feedstock selection. Let's be clear that every carbon rich waste feedstock from solid carbon, including carbon locked in municipal solid waste or biomass industrial off gases, including those rich in CO2 to carbon and biogas can all be converted to SAS in this way. The robust pipeline of opportunities that exists for this type of collaborative waste based fuel solution is expected to be a significant demand driver for our biorefining business and a key pathway for LanzaJet to license its technology. To facilitate delivering these projects, LanzaTech and LanzaJet launched our joint offering called CirculAir. CirculAir is a coordinated commercial offering and powerful end-to-end solution utilizing LanzaTech's Gas Fermentation platform in conjunction with LanzaJet's ATJ platform to produce sustainable aviation fuel and renewable diesel from a wide range of waste feedstocks. Scaling SAF for urgency is critically important for aviation, a hard to abate sector, representing 3% of today's global CO2 footprint. In 2023, a mere 0.2% of global aviation fuel volumes was SAF, but this is expected to jump to 1% in 2026 and to 10%, or approximately 10 billion gallons in 2030. The enormous scale up of the SAF industry necessary to meet this demand is also benefiting from recent regulatory tailwinds around the world that support the use of a variety of waste feedstocks to meet that end. This supports rapid build out of technologies like LanzaTech that can flexibly use locally available feedstocks to suite regional conditions. CirculAir builds on the undeniable momentum behind scaling shaft production globally and the large opportunity set available to our two companies. You will hear more about CirculAir in the coming months as we expect to announce some important joint projects with LanzaJet.

I also want to take a few moments to give an update on Project SECURE, a major initiative which we announced in March of this year. By way of background, LanzaTech and our partner Technip Energies were selected to receive a $200 million award from the US Department of Energy's Office of Clean Energy Demonstrations. The award is for the construction of a new LanzaTech gas fermentation facility, which will be integrated with Technip's Hummingbird ethanol-to-ethylene technology and an existing steam cracker in the US Gulf coast. Importantly, this is not an R&D project. The R&D and related investments are complete. The funds from this award will aid in reducing the capital expense for this first of a kind of commercial facility.

Project SECURE represents a highly replicable project opportunity set for LanzaTech, as there are more than 370 ethylene steam crackers across the world and our decarbonizing solution efficiently bolts onto that existing infrastructure. On the feedstock front, no new fossil feedstock is being brought in to produce more ethylene. Rather, we're generating more ethylene for the producer from what would have been their CO2 waste emissions. Ethylene is often referred to as the world's most important chemical, given its use as a key building block in countless products we use every day, from clothing to packaging to foam and jet fuel, and is expected to be a $200 billion market by 2030.

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However, ethylene production is also a major source of emissions globally, responsible for the release of over 500 million tons carbon dioxide into the atmosphere per year and in need of carbon abatement solutions like what LanzaTech provides. With our combined solution, we take those emissions and convert them into valuable product this maximizes the use of the carbon molecules going into that facility, enabling our customer to increase their profits by being more resource efficient. We're currently working collaboratively with the DoE on the agreement for the project and anticipate completing the award contracting process in the coming months, with the goal of receiving initial award funds by the end of 2024.

I'll touch now on a highlight I mentioned at the start, and that's the work we're doing with IKEA related to polypropylene. We're working with IKEA to convert waste carbon rich gases to isopropyl alcohol and then to propylene. Polypropylene is a very versatile and durable plastic with many different uses, and customers like IKEA are interested in applications where mechanically recycled plastic cannot be used today; for example, transparent products, products requiring food contact, or other products with very strict requirements, including medical applications. Today, 100% of new propylene in use worldwide is made from petrochemicals. Replacing all of the world's fossil propylene production with carbon capture and utilization made polypropylene would reduce carbon emissions by an estimated 700 million tons per year or more. The global propylene market size was a little over 120 billion in 2022 and is expected to expand at a compound annual growth rate, or CAGR, of close to 5% from 2023 to 2030. We talk a lot about the anticipated growth I had for LanzaTech related to SAF, and it's my belief that our work with chemicals could grow in tandem with SAF and be just as big. This is not just an idea. In fact, we produced sufficient isopropanol for IKEA to make food storage containers. As a proof of concept, we also completed the development work on our isopropanol process, which means we should be ready to license that technology this year.

Our progress is not only driven by growing revenue, it is also underpinned by our commitment to manage costs across the organization. And the cost savings we expect from our reorganization and from our reprioritization earlier this year are starting to show up in our results. Stepping back from the specifics of the many important projects and developments I have discussed, I want to address a question that I'm frequently asked by customers, partners, investors, thought leaders and stakeholders. And the question is, what is LanzaTech's competitive advantage? Or, stated differently, what gives you confidence that LanzaTech will be successful over the long term? And while there are many reasons, two stand out. Number one, we have a commercially proven endurance technology. With six commercially operating facilities, we're not only ramping up production volumes and generating licensing revenues, but we also have over half a decade of operational experience at commercial scale. This extensive know-how allows us to partner with an impressive roster of customers, innovate continuously, and build more commercial scale facilities. Later this year, we expect to see announcements regarding repeat licensees and customers as we continue to move from first of a kind in the region to a series of plants with existing partners.

Number two, the flexibility of our technology. Our ability to utilize a diverse range of waste feedstock such as municipal and industrial waste, agriculture and forestry residues, and industrial off gases ensures a commercial scale low cost supply of inputs globally, allowing us to benefit from regional variations in feedstocks and produce valuable ethanol for major markets in sustainable fuels, textiles, plastics and chemicals. We are a business built on a platform which has led to sufficient interest to enable a licensing model and we are building a strong recurring revenue foundation brick by brick, with each license that we deploy. As I said at the start, we are making undeniable progress and that to me and to all of us here at LanzaTech, is very satisfying.

With that, I'll turn it over to Geoff.

Geoff Trukenbrod

Thanks Jennifer. Good morning everyone, and thank you for joining us on the call. I'll discuss our results for the second quarter of 2024 and then I'll provide further details on our expectations for the back half of this year. As Jennifer mentioned, and as seen on slide five of our latest investor presentation, we reported strong revenue growth for the second quarter of 2024, achieving $17.4 million of total revenue, which exceeded expectations. This represented year-over-year growth of 35% and 70% quarter-over-quarter. Drilling down into the separate revenue categories, this quarter's strong results were driven by revenue of 13.7 million in our biorefining business, which was up 41% year-over-year. As Jennifer noted, a significant component of this revenue was related to the additional equity consideration we received from LanzaJet in Q2. This additional consideration relates to the exclusive licensing agreement associated with the ATJ technology that we entered into with LanzaJet when we originally spun LanzaJet out into its own business. When we launched LanzaJet in 2020, we received our initial equity ownership stake in consideration for exclusively licensing them, the ATJ technology developed at LanzaTech. The company has consistently accounted for this 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. Consistent with that approach, the additional equity consideration we received in Q2 was accounted for as additional consideration for that same performance obligation over the same period.

As contemplated in the original licensing agreement, LanzaJet's ability to further sublicense the ATJ technology is enabled by the grant of additional equity to LanzaTech. Associated with LanzaJet's first sublicensing event of the ATJ technology, the Q2 equity grant to LanzaTech was the first of what is anticipated to be a total of three additional tranches of 15 million shares for each of the first three sublicensing events, at which point LanzaTech will have received its full consideration for the ATJ license. For further details regarding the accounting treatment for this transaction, please refer to the Form 10-Q we filed with the SEC today.

Biorefining revenue in Q2 also included startup and engineering services revenue from existing customers, as well as early stage engineering and equipment revenue associated with multiple new customers, including NTPC, one of India's leading power generation companies. Excluding the $7.9 million related to the LanzaJet transaction, these revenues were 5.8 million for the quarter. Joint development and contract research revenue for the second quarter of 2024 was $2.8 million as compared to 2.2 million for second quarter 2023, representing an increase of 25% year-over-year, primarily reflecting the progression expansion of work with existing JDA partners. And for CarbonSmart, revenue for the second quarter of 2024 was $0.9 million. It was fairly in line with the $1 million we did in second quarter of 2023. Importantly, CarbonSmart for the first half of 2024 was $1.8 million as compared to 1 million for the first half of 2023, representing a year-over-year increase of 79% and we continue to expect a ramp in this revenue category in the back half of the year.

Turning now to cost of revenue, we reported $5.5 million in second quarter 2024 as compared to 10.8 million for second quarter 2023. Cost of revenue for this quarter was largely comprised of headcount allocations related to delivery of our biorefining services and JDA work. As a result of the significant licensing component of our revenue in Q2 and its associated low cost, gross margin was very healthy this quarter, coming in at 68%. If we strip out the uplift attributed to the LanzaJet transaction, gross margin was still a solid 42% for the quarter.

On the operating cost front, second quarter 2024 operating expenses were $34.7 million as compared to 32.7 million for second quarter 2023. Importantly, this OpEx came in under budget as we continue to work to drive down our OpEx this year. With that said, we still saw a 6% increase in OpEx year-over-year as we continue to incur expenses associated with select free FID projects that we're developing which are not currently eligible for capitalization. We expect to recoup these costs when our infrastructure capital partners take over these projects at FID and expect the first of these transition transactions to take place during the fourth quarter of 2024.

Our second quarter 2024 adjusted EBITDA loss was $17.8 million as compared to a second quarter 2023 adjusted EBITDA loss of 23.8 million. The year-over-year improvement of 26% is primarily attributable to the higher Q2 revenue and its mix of higher margin revenue, which drove significantly higher year-over-year gross profit.

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Turning now to our liquidity and cash position; at the end of June, we had $75.8 million in cash on hand, which includes cash investments and restricted cash. This compares to $92.3 million at the end of first quarter 2024. Our total cash burn for the second quarter of 2024 was $16.5 million, which was down significantly as compared to $29.2 million for the first quarter 2024 and the comparable quarter in 2023. The decrease quarter-over-quarter was due in large part to the working capital impacts we previously discussed in our first quarter 2024 call, including a number of large annual payments such as 2023 incentive compensation, the majority of our 2024 insurance premiums and other expenses that are traditionally paid during the first quarter but expensed throughout the year for accounting purposes, as well as a large customer payment that was deferred from Q1 into Q2. Q2 cash burn was further benefited by the reduced OpEx I referred to earlier.

As Jennifer previously mentioned, we're excited to announce the closing this week of a new $40 million investment by Carbon Direct Capital, a globally recognized investor in the energy transition space. This additional capital bolsters our balance sheet and strengthens our financial flexibility. As noted in our 10-Q, this $40 million was invested pursuant to a convertible note purchase agreement, which contemplates one or more closings for up to $150 million of convertible notes. We continue to seek additional financing under the convertible note purchase agreement from certain accredited investors with whom we have a pre existing substantive relationship.

I'll now quickly touch on our recent Form 8-K related to a lawsuit we filed in connection with what we consider a breach of our Forward Purchase Agreement, or FPA. There's a detailed discussion contained in our Form 10-Q filed today, but I will provide you with a few high level details here. Essentially, it is our position that a shareholder breached the FPA by selling LanzaTech shares that it was obligated to hold for the benefit of LanzaTech under the FPA. We are alleging that if in fact shares were sold by the shareholder, LanzaTech is entitled to receive from the shareholder approximately $10.16 per share sold per the terms of the FPA. The shareholder, in turn, has notified us that its position is that they were entitled to accelerate the maturity date of the contract, given our shares had traded under $3 for 50 out of the 60 trading days period prior to July 2, 2024, and therefore, per the contract terms, LanzaTech owes the shareholder approximately $7.5 million in maturity consideration, which can be satisfied in cash or shares, and approximately $2.5 million in share consideration payable in cash.

It's important to note that it is our position the shareholder breach the contract before the maturity date could be accelerated and the shareholder sold its shares without complying with the procedures in the FPA, which includes paying LanzaTech the corresponding amount per share to which it is entitled. Therefore, we believe that we are entitled to significant damages and because we do not view the maturity date notice as valid, LanzaTech does not believe that any payments are owed to the shareholder pursuant to the maturity acceleration or its later notice of termination of the FPA due to lack of payment. We plan to pursue our claims vigorously, but cases like this can take some time to conclude. We will not be commenting on this ongoing litigation, but we wanted to make the details of this case abundantly clear from the start. We're taking the situation very seriously.

Now, I'd like to take some time and discuss the remainder of 2024 and what we see from here. As Jennifer mentioned, we're reaffirming our full year 2024 revenue guidance of $90 million to $105 million, which at the midpoint represents approximately 55% revenue growth over 2023. We're also reaffirming adjusted EBITDA of negative $65 million to negative $55 million for full year 2024, which at the midpoint represents an improvement approximately 25%. As we look at how projects are progressing and how revenue projections are broken down between the third quarter and fourth quarters of this year, we expect revenue to be heavily weighted to the fourth quarter, with third quarter 2024 revenue expected to be similar to second quarter 2024. We expect several projects to progress to the final investment decision stage of our development process in the fourth quarter. This unlocks equipment revenues as these projects progress into construction. The team is very focused on progressing these projects, but if timing slips into next year, then it can negatively impact our ability to achieve our guidance. We expect the quarterly impact of project timing will lessen over time as we continue to scale our recurring revenue. We remain focused on reaching profitability as soon as reasonably possible. Our path to profitability is simple. It is based on continued growth of revenue and gross profit while diligently controlling our costs, and that's exactly what you can count on from us.

With that, I'll turn the call back to Jennifer for some closing remarks before we open the call for Q&A. Jennifer?

Jennifer Holmgren

Thank you, Geoff. While many countries are already moving to a future with carbon free power, we still need a sustainable source of carbon for essential products like textiles, packaging, consumer goods, food and fuels. Carbon is not the enemy, but an essential part of our daily lives. The issue is how we source, utilize and dispose of the carbon we use. LanzaTech has the flexibility to deliver solutions to address this challenge. Efficiency is key. We must make the most out of every carbon molecule. Initiatives like Project SECURE will enable our customers to produce more products and drive more revenue while reducing the need to buy more fossil feedstocks. This will enable our economy to keep more fossil carbon in the ground.

The circular economy prioritizes resource efficiency, waste reduction and sustainable practices. This not only keeps materials in use for as long as possible, minimizing the strain on our planet's resources, but it drives maximum value from every carbon molecule. This is exactly what LanzaTech offers its customers and how we intend to help develop a new circular carbon economy. A cornerstone of a strong circular economy is that companies have to operate within it profitably. We at LanzaTech are steadfast in our focus to drive to profitability as quickly as possible.

I want to close by coming back to the five key takeaways I outlined at the outset of the call. First, we delivered strong results that were ahead of expectations for the quarter, with revenue growth of 35% year-over-year. Second, we continue to sign new contracts, add new customers and progress projects through our biorefining development pipeline and I am especially excited about the commencement of our CarbonSmart fuel sales. Third, we increased our ownership in LanzaJet by 14%, up to 37% from 23%. Fourth, we announced a $40 million investment from a new investor, Carbon Direct Capital, which will help fund future growth and working capital as we scale our business. Carbon Direct is a leading investor in the carbon management ecosystem, and they have sophisticated expertise in the scale up of carbon abatement solutions. We are very pleased to welcome them on this journey with us. And fifth and final, we reaffirm the financial guidance for the full year, which includes 2024 revenue expectations of 90 million to 105 million. The team is very focused on getting several sizable projects across the FID line in the back half of this year, and we look forward to updating you on our progress in the coming months.

Our financial objectives have been, and continue to be reaching profitability and from there, becoming free cash flow positive. The way we get there is by executing on projects, deploying licenses, and being diligent with cost management, and that is exactly what we're doing.

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With that, let's open the call up for questions.

Question-and-Answer Session

Operator

Thank you. [Operator Instructions] And we will take our first question from Jeffrey Campbell with Seaport Research Partners.

Jeffrey Campbell

Good morning. This is a quarter that could produce dozens of questions, but I'll limit myself to four, if I may. The first one is, are other entities showing interest in your polypropylene effort? Does the incipient work with IKEA limit Lanza's ability to work with other interested parties?

Jennifer Holmgren

Hi, Jeff. Thanks for limiting your questions to four and that is a great one to start with. There is no limitation on who we can work with. The work with IKEA was to develop the capability, because they win if there is sufficient interest, to build commercial facilities; and as you can imagine, with polypropylene, there's a lot of interest. For example, it's critical in the medical sector, it is critical in the automotive sector, and so we are talking to quite a number of partners who are interested in the off-take. And even more exciting, we're talking to a number of partners who are really interested in licensing the technology so they can use our new bacteria to make isopropanol that can then be converted further to propylene and then polypropylene. So there is tremendous interest and there is absolutely no limitation on us.

Jeffrey Campbell

Okay, great. I was wondering if you could add a little bit of color to the specific ethanol licensing that you've now achieved for CarbonSmart. And with that in mind, which markets do you feel are now more open to Lanza as a result?

Jennifer Holmgren

And you're talking about the fuel licenses.

Jeffrey Campbell

Correct.

Jennifer Holmgren

And so from the first ethanol sales with our new licenses went into the China market. We are looking at other markets in Southeast Asia as well. The one license that we were -- that still remains is an ISCC certification that enables us to trade into Europe. That one we don't have yet and so our fuel sales right now are absolutely focused on China. And as you can imagine, it was quite a journey to get all of the licensing, all of the permits and all of the infrastructure to enable us to do that. So we're now on a smooth path and made our first sale.

Jeffrey Campbell

Okay, great. Yeah. Earlier in your prepared remarks, you may referenced hopefully green hydrogen with regard to the Indian project. I was just wondering, is it possible to arrive at an acceptable carbon intensity score for Lanza CO2 hydrogen project without green hydrogen?

Jennifer Holmgren

So I think gray hydrogen will make it difficult. Conversion with our process or anybody else's process of CO2 with grey hydrogen will make it very difficult to show a reduction. However, blue hydrogen will work and green hydrogen will also work. The reason the NTPC project is so exciting for us is that NTPC is really accelerating their transition to renewable power and have started also to focus on green hydrogen. So blue works, green works and our partner is already doing a lot of work to transition to renewable power, so we know the electrons will certainly be available, the green electrons, and it's just a question of building out the greenhouse electrolyzers as well.

Jeffrey Campbell

Okay, and then my last one. Can you expand on what the promotional advantages or the cost savings are in the CirculAir joint or partnership or whatever we call it? What does that offer to Lanza and LanzaJet, it's not already available to them.

Jennifer Holmgren

Yeah, that is actually a great question. We have worked as independent companies in developing projects that go from waste all the way through to sustainable aviation fuel and, as you can imagine, that slows down the process. And so what we're agreeing to do here is to have a single face to the customer so that the agreements, the proposals, all of the techno economics are all done with a single face. That will make it go much, much faster. So basically what we're doing is committing to faster project development. The other thing that I think is important is by thinking of it as joint offering, the additional thing that we'll be able to do is really do much more on integration. If you look at our technology, it's the technique right now, from ethanol to ethylene, the LanzaJet piece, the LanzaTech piece -- I'm sorry, the LanzaTech and the LanzaJet. By doing it all as one face to the customer, we're also going to work very, very hard to do better mass balance, better heat integration, remove redundant equipment. All of these things will allow us to also get to a more cost effective offering. So the first stage will be just what the customer sees. The second phase will be how we integrate to make everything much more profitable and sustainable for the customer.

Jeffrey Campbell

Great. Thank you. I appreciate it.

Operator

Thank you. And we will take our next question from Thomas Meric with Janney Montgomery.

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Thomas Meric

Good morning. Thanks for the time and for taking the questions. Just a few for me, maybe tagging off at Jeff's on Jakson Green. Curious, just from a different angle, on the second generation bioreactor, is there anything about that second generation reactor that helped make this project pencil out, or is it just kind of a natural progression and timing matchup?

Jennifer Holmgren

Great question. Thank you for that, Thomas. Indeed, the project pencils out even with the first generation reactor. The second generation reactor makes it more efficient, more effective. And when you've got a second generation reactor, a technology evolution like that, you're going to just start putting it in play, right? You always want to maximize profits. You always want to reduce costs, and that's what second generation reactor does for us. And so we intend to continue to implement it wherever it makes sense.

Thomas Meric

Helpful. And then on the project funnel, just want to think about the back half of the year as things reach and meet FID. I'm curious if you can characterize or at least provide any more detail on just the types of project delays that are kind of possible. Is it supply chain, is it labor, is it just financial getting things done or general latency? Just kind of curious on any additional detail for that.

Jennifer Holmgren

Yes, let me pass this over to Geoff so he can give you a lot more details, Thomas.

Geoff Trukenbrod

Yes. Thomas, thanks for the question. As we talked about, we're expecting Q3 to look largely like Q2, which does obviously suggest a lot of weight on the fourth quarter. There are a half dozen or so of significant projects that we are focused on in the fourth quarter. We're seeing revenues ramping up in the third quarter associated with some of those, but there are kind of material events in the fourth quarter. We talked about looking to transfer our first project, one of our infrastructure capital partners, obviously a meaningful amount of the quarter right there, plus these other three or four. So certainly the difference between some of these transactions happening on 12/31 versus 1/1 could have meaningful impact on our quarter, but we don't see significant risk associated with those projects, just a matter of time. But certainly there could be some timing aspects associated with them.

Thomas Meric

Helpful. And then last question for me, kind of hint to that, I think. Just want to get an update on Brookfield and the first project to be transferred to that partnership or just generally, any comments you have on the partnership. And that's it for me. Thank you again.

Jennifer Holmgren

Indeed. So we have a project that I can't go through more details right now that we are taking through to FID. The most important part about the partnership is that while we're developing the project, we are working directly with Brookfield, who is providing input on -- FID is a fluffy concept that can be defined by many people in different ways, right. And so by working with them directly, they point us to exactly what they need at every stage of the game so that when we are ready to transfer the project, they're not going to say, well, surprise, I need these three other things which are going to take you another couple of months. So we have a real project. We've gotten it to the very late stages of engineering. We're working with our EPC partner. It has met, so far, even though we're in late stages, all the criteria required by Brookfield. We've just got a couple more things to do to check the FID box. Yeah, leave it at that. Actually, I should add one other important thing. We have a really robust pipeline. The only reason -- with Brookfield, the only reason we're focused on one project initially, while we could do many in parallel, is it's really quite important to understand how to transfer a project to them. And rather than just having too many projects that we're working on at the same time, we wanted to focus on one transfer quickly and say, okay, here's the rest of the pipeline, and move that very, very quickly.

Operator

Thank you. And our next question comes from Jason Gabelman with TD Cowen.

Jason Gabelman

Yeah, morning. Thanks for taking my questions. I wanted to ask first on the financing you announced this morning, the $40 million of convertible notes. I was hoping just if you could provide some key terms around that convertible note, the kind of maybe the rate and if that's interest that's paid in cash or in kind, and then the convertible strike price? And, yeah, that would be helpful.

Geoff Trukenbrod

Yeah. Jason, thanks for the question. Happy to try and get on a couple of the key terms. It is, as we commented on, $40 million of what's contemplated to be up to $150 million of convertible notes. The basic terms, there is an 8% coupon. It is a pick, so it's paid in kind, so there's no cash pay associated with it. There are -- the basic conversion price is $1.52, there are different adjustments to the conversion price and mandatory conversion features, voluntary conversion features and so I direct you to the 8-K that we put out this morning that includes the documents themselves and some additional key terms associated with it. But again, it's fairly straightforward piece of converter.

Jason Gabelman

Okay, great. And then the follow up is just the path to break even EBITDA and kind of tied to this financing. Are you more comfortable now with your cash position and do you feel like you have enough of a liquidity buffer to get up to breakeven EBITDA? And any updated thoughts on when you expect to hit that important milestone?

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Geoff Trukenbrod

Yeah, so we are very pleased to have an additional $40 million of liquidity on the balance sheet. We do think that that provides sufficient funding through 2025 as you kind of look at our cash burn historically and the expectation that that will continue to decline over that period of time. As you know, we haven't provided guidance beyond 2024 in terms of the specifics around profitability, but we do expect to raise additional capital associated with either this round or some additional.

Jason Gabelman

Okay, thanks.

Jennifer Holmgren

Can I just please piggyback on that for a second? We're also very excited to be partnering with Carbon Direct. I don't know if you know Carbon Direct, but they specialize in carbon management companies. They have a consultancy piece that works with the Microsoft, Morgan -- JP Morgan, Mitsubishi, and other major corporations on really, carbon management and how to think about carbon reduction. And they also have an investment arm and that investment arm has initially focused on early stage private startup companies and is now starting to focus more and more on de-risk scale up companies like ourselves. So we are really, really happy to have them on board and I just want to make that clear that they're going to make a tremendous partner and help us on our journey and very well aligned with the rest of our investor base. Thank you.

Jason Gabelman

Thanks.

Operator

Thank you. And we will take our next question from Steve Byrne with Bank of America.

Steve Byrne

Yes, thank you. Jennifer, you made a comment that you expect to get that funding from the DoE for Project SECURE by year end. I assume you likely have a cracker lined up for this project and maybe more specifically the hydrogen that you'll need to capture the CO2 and convert it into first ethanol. Could you use the hydrogen that's a byproduct from the cracker and arguably call it blue, given your carbon capture system, is this a way to potentially reduce the cost of the process?

Jennifer Holmgren

Do you want to come over and project manage the project, Steve, because I think you're right on there. Absolutely, I think the carbon intensity of off gases that exist in the petrochemical complex that we'll be using and how we leverage those is going to be extremely important in thinking through this. And the way we're going to think about the hydrogen we use is to both look at its carbon intensity as well as its availability and cost, right. And the techno economics plus the lifecycle will dictate exactly what hydrogen we use as feedstock. But absolutely, the value of these projects is to integrate. The value of these projects is to reduce costs by leveraging what's available. And I also want us to always remember that our projects enable us to create a roadmap. In other words, one can start with a certain techno economic basis, with a certain carbon intensity, and then transition to something more rigorous, right. Nothing says that as green hydrogen and green electrons become much more available, a plant that started up on what would essentially be blue hydrogen and off gas from the refinery cannot become then supplemented by green hydrogen, continuing to reduce its carbon intensity. And I think what you'll find is, in industries like SAF, you get rewarded for the carbon intensity of your products. So we won't let the perfect be the enemy, good. We'll start with what's available and make sense, and then we will progress to things that raise the bar. And so that really is what we intend to do here and demonstrate that path. Thank you again.

Steve Byrne

Sure. And at full scale, do you have an estimate of what the unit variable cost could be per pound of ethylene, just as a way to characterize this pathway, as opposed to using ethane based feedstock?

Jennifer Holmgren

Not today. Too many unknowns on the exact site, the exact hydrogen source, the exact cost of the utilities and that will be after the phase of engineering. And we hope to start that before the end of the year for sure, and take it into early next year. So ask me again next year, please.

Steve Byrne

And just one last one for you. Any meaningful differences or challenges between this operation to produce ethanol and then ethylene versus producing propanol and then propylene, is one any more challenging than the other? Are your microbes fully capable of producing either?

Jennifer Holmgren

So the base case ethanol is our existing commercialized microbe that we have so many years of experience with. We had our first commercial plant running in 2018. The propylene is a genetically modified organism. It is one that we have developed. It is the chassis, the basis, it is the bacteria that makes ethanol but it is modified. It is a more challenging step than doing ethanol, which is our bread and butter. We don't believe there are any issues. You know our processes, we're very conservative and we have taken it through the piloting. We've piloted isopropanol at our Suncor demonstration facility. So we're very comfortable and confident, but I don't want to say ethanol and propanol right now on the same breath, right. We need to accept that that is still going to be a first of a kind when we do propanol. But what you said, which I think is most important, is crackers make ethylene and they make propylene. And it is absolutely LanzaTech's intention to lever crackers to make these sustainable ethylene and propylene. We will do it at the same location. We will make it work exactly the same way. We will integrate it in a way that the economics make sense. We are trying to displace all of the commodity chemicals that are used today in making the products we use every day.

Steve Byrne

Very good. Thank you.

Operator

Thank you. And it appears that we have no further questions at this time. I will now turn the program back to Jennifer Holmgren for closing remarks.

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Jennifer Holmgren

Thank you so much. LanzaTech and the circular economy are in growth mode. The circular economy market size was valued at roughly 550 million in 2023 and is projected to reach over a trillion dollars by 2030, representing a CAGR of 13% from 2024 through 2030. Together, we at LanzaTech are not just building a technology, we're pioneering that circular economy that has the potential to transform pollution into profit and enable economies to grow using local resources, fostering a sustainable future for generations to come. Thank you again for joining us. Thank you for supporting us. Thank you for giving us the opportunity to show what we can do with carbon that's already above ground. Thank you. Thank you. And I wish you a great rest of your day.

Operator

Thank you. This does conclude today's LanzaTech Global, Inc. second quarter 2024 earnings conference call. Thank you for your participation. You may disconnect at any time.

**Load-Date:** August 11, 2024

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