LanzaTech Global, Inc. (NASDAQ:LNZA) Q1 2024 Earnings Conference Call May 9, 2024 8:30 AM ET

Company Participants

Omar El-Sharkawy - VP, Corporate Development
Jennifer Holmgren - CEO
Geoff Trukenbrod - CFO

Conference Call Participants

Leo Mariani - ROTH MKM
Thomas Meric - Janney Montgomery
Jeffrey Campbell - Seaport Research Partners
Steve Byrne - Bank of America

Operator

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

And now at this time, I'll turn things over to Omar El-Sharkawy, Vice President of Corporate Development. Please go ahead, sir.

Omar El-Sharkawy

Good morning. And thank you for joining us for LanzaTech Global Inc First Quarter 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 first 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. 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 and our recent financial results. Jeff will then review in greater detail our financial results, and Jennifer will conclude with a few closing remarks. At the conclusion of these prepared remarks, we will open the line for questions.

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

Jennifer Holmgren

Thank you, Omar, and thanks to everybody joining us today. We appreciate your ongoing interest in and support of LanzaTech. I'd like to begin by sharing five key things from the past several months that I'd like for you to take away from this call. These are all outlined on slide five.

First, we delivered financial results for the first quarter right in line with our internal forecasts and guidance provided last quarter. Revenue of approximately $10 million, gross margin of 34%, and gross profit of $3.5 million all increased year-on-year as we continue to scale and optimize the business while closely managing costs across the organization.

Second, we announced in March that Project SECURE, where a partner Technip Energies has been selected by the U.S. Department of Energy to receive a $200 million grant. This commercial project will leverage LanzaTech and Technip Energies transformational technologies to produce sustainable ethylene from captured carbon dioxide emissions, further validating the transformative nature of our carbon recycling technology, and laying the groundwork for highly reputable project opportunities for LanzaTech at the more than 370 ethylene steam crackers across the globe.

Third, it was an extraordinary quarter for sustainable aviation fuel, our investment in LanzaTech, and our role in the broader SAF sector, which continues to gain significant momentum globally.

In January, LanzaJet, in which we continue to hold an approximate 25% ownership interest, inaugurated the world's first ethanol to SAF facility in Soperton, Georgia. The achievement marks a strategic and historic milestone not just for LanzaJet, but for the growing SAF economy at large, as this 10 million gallon per year facility brings a new production route to commercial scale, the Alcohol-to-Jet or ATJ pathway.

Separately, LanzaTech is in the process of completing an approximate $100 million investment round to accelerate its growth from some of the largest and most influential companies and investors in the world, with commitments already from Microsoft Climate Innovation Fund and Southwest Airlines.

Fourth, we continue to advance our growing pipeline of commercial scale projects while expanding the scale and diversity of the feedstocks and represented geographies. This includes growing the base of projects extending to the top of our development pipeline, as well as advancing projects through the various development stages.

And finally, we are reiterating our 2024 financial and operating guidance introduced earlier this year. This includes expected revenue of $90 to $105 million, which at the midpoint reflects top line growth of approximately 55% over last year's performance. From this, we continue to execute on our growth plan while maximizing operational financial flexibility across all parts of our business.

As we mentioned in our previous quarterly calls, we are committed to a culture of safety and are proud to report that we concluded the quarter without any safety incidents at our facilities in the field or in the laboratory. Regrettably, we did however have one recordable loss and injury due to an office place incident during the quarter.

I would like to now review the key highlights from the first quarter of 2024, starting with Project SECURE, our sustainable echoing from carbon dioxide projects in partnership with Technip Energies.

As shown on slide six, Project SECURE is a commercial demonstration of carbon capture and utilization. The grant funding of up to $200 million from the U.S. Department of Energy will support the design, engineering, and construction of Project SECURE at a U.S. Ethylene Cracker facility.

We expect work on this project to commence in the fall when we finalize the contracting details associated with this project. By combining the LanzaTech gas fermentation technology with Technip Energies ethanol to ethylene technology, this transformational project is expected to produce 30,000 tons per year of sustainable ethylene from capture carbon dioxide emissions at an ethylene cracker operating at a major petrochemical facility in the U.S.

In turn, the sustainable production will reduce the carbon intensity of the existing ethylene production of the facility. Ethylene has a massive global market projected to reach $200 billion annually by 2030 and is often referred to as quote, the world's most important chemical.

It's given its use as a key building block in countless products we use every day, from clothing to packaging to foam to jet fuel. However, ethylene production is also a major source of emissions globally, responsible for the release of over 500 million tons of carbon dioxide into the atmosphere per year and in need of carbon abatement solution like LanzaTech.

Project SECURE offers an immediate and highly replicable solution to decarbonize ethylene production using existing infrastructure. Technip Energies is the global leader in providing steam cracker technology to the chemical industry with 40% to 50% of the global licensing market share by ethylene production.

The modular design of project SECURE is intended to be easily deployable at ethylene crackers around the world for which there are more than 370. This provides an enormous commercial opportunity for LanzaTech and Technip to rapidly penetrate the ethylene value chain with its joint technology offering and capture a significant portion of this market given our established licensing models.

Looking now at sustainable aviation fuel on slide 7, we remain bullish on the SAF market. As I noted earlier, it was an increasingly exciting few months for LanzaJet and the SAF market more broadly and we believe we are well-positioned to play a significant role in the proliferation of SAF production through the Alcohol-to-Jet battery.

LanzaTech's ethanol will be a critical feedstock for SAF and when coupled with LanzaTech technology enables production of SAF from a variety of waste inputs and residues including municipal solid waste and e-fueled.

The inauguration and startup of LanzaJet's freedom pines fuels facility, the world's first biorefinery jet-transform to ethanol into sustainable radiation fuel, is again a changer. We expect that the facility will begin producing SAF by the end of the second quarter and ramp up the full production over the course of the year.

This facility will focus on maximum production of SAF at 90% of the product output with the remainder 10% as renewable diesel, which is a unique capability of the LanzaTech technology and unmatched biorefineries [ph].

We've made good progress on the opportunities in our commercial pipeline that focus on integrated solutions to convert waste gas and residues through the SAF by pairing LanzaTech's gas fermentation technology with the LanzaJet Alcohol-to-Jet process. Our project with that we are in Abu Dhabi to take gasified solids through the saf and our project in New Zealand would earn New Zealand, the New Zealand government to take predominantly gasified forestry residues through the SAF both contributed to engineering services revenue during the first quarter.

Our project Dragon in the UK taking industrial gas through the SAF is an advanced engineering with a front-end engineering and design completed and planning permission granted for the SAF unit.

We continue to utilize the grant funding received by the UK Department for Transport to bring that project to FIT. We recently announced UK SAF mandate is positive for the overall UK SAF market and specifically supportive of our process and project Dragon.

The mandate stipulates that SAF must account for 2% of all fuel in the aviation sector with the threshold increasing to 10% in 2030 and 22% in 2040. Importantly the mandate provides a cap on SAF production via the hydro process esters and fatty acids or HEFA production pathway that becomes more stringent over time, which means there's a protected market for advanced SAF in the UK such as SAF produced from waste based ethanol.

Additionally the SAF buy-out price for the price of both airlines can pay to opt out of their obligations has been significantly increased that the results of the mandate further supporting SAF processes in this market.

In addition to a role as feedstock provider of waste based ethanol to Alcohol-to-Jet SAF production, we are extremely proud of our strategic ownership taken LanzaJet and welcome new world class co-investors into LanzaJet. We continue to hold our approximate 25% ownership in LanzaJet today.

The recent equity rate by LanzaJet has been done in an unpriced round and is therefore non- deluded to LanzaTech at this time. Additionally LanzaJet's recent capital rate does not impact the mechanism by which LanzaJet is issued additional LanzaJet shares to increase our ownership percentage as the original co-investors and others build their own plants using LanzaJet SAF technology.

Moving to slide eight on our commercial project pipeline our total operating project count stands at eight, which includes both commercial scale and demonstration scale projects. Please note that for the purposes of the project funnel we have now separated out the LanzaJet freedom pines fuels facility from this illustration.

This LanzaJet project was previously in the construction category and going forward we'll provide updates on the project separate from the LanzaJet biorefining project pipeline. The LanzaJet freedom pines fuels project is currently in commissioning and startup and is on track for production of fuel in the second quarter this year.

The total installed maintenance production capacity across our license sheets operating through the six commercial biorefining projects is approximately 310,000 tons of ethanol per year with the ability to abate more than half a million tons of carbon per year that would otherwise enter our atmosphere.

The four commercial plants in China continue to perform and will continue to make progress on the ramp up to full production capacity at Indian oil facility in India and ArcelorMittal facility in Belgium.

Our global services engineers are diligently working hand-in-hand with our customers to ramp up production and we expect that successful full scale operations will be achieved within 2024.

Looking at the top of the funnel we have nine net additions of qualified project opportunities into the first phase of the pipeline in the first quarter and one net project addition into advanced engineering from early stage engineering.

As mentioned during our last update we continue to expect that several projects in advanced engineering will achieve final investment decision and move into the construction phase in the second half of this year. As a result we expect revenues from the sale of equipment packages to materialize with respect to those projects along the same pipeline.

In addition to the significant depth of our commercial licensing pipeline, we're working with our infrastructure capital partner Brookfield to transfer the first project under our partnership to them this year, while ramping up development of additional project opportunities.

Additionally, we're working closely with our joint venture partner Olayan on developing and financing a pipeline of project opportunities in Saudi Arabia and the broader Middle East. In our CarbonSmart business we continue to negotiate off-state supply agreements with our partners in China and Europe to satisfy the growing CarbonSmart demand in 2024 and 2025.

We're focused on sales into the global chemicals market with a revenue in the first quarter from several of these customers. We also remain optimistic about revenue outside for CarbonSmart ethanol in the low carbon fuels markets specifically in the EU once regulations are settled at the European Commission on how these first of their pine fuels are treated.

Positive technical guidance continues to be provided by the Commission, but it is not yet final. With the latest expectations suggesting that the European Commission will approve the certified bodies this summer.

Lastly before turning it over to Jeff, I wanted to share a brief update on the reorganization initiative designed last quarter. We've already begun to see the operational transparency and efficiency bear fruit with a more streamlined executive team driving greater accountability and enhanced execution throughout the company.

The reorganization and work reprioritizations announced earlier this year are now fully underway with the estimated cost savings associated now beginning to materialize. We continue to expect the annualized operating expense savings of $5.3 million to be realized over the course of this year.

Additionally, we'll continue to expect to end the year with our global headcount at or below 400 people, which is below the total headcount at year end 2023. As a global team we are focused on commercial growth in our core business and delivering on the financial results we've committed through the market.

With that I'll turn the call over to Jeff to provide details on our financial performance. Geoff, please go ahead.

Geoff Trukenbrod

Thank you, Jennifer. Good morning and thank you to everyone for joining us on the call. To see on slide 10, total revenue from the first quarter 2024 of $10.2 million grew by 6% year-over-year. It was right in line with our forecasts and the guidance we laid out last quarter.

CarbonSmart revenue was approximately $1 million and JDA & Contract Research revenue of $4.3 million, both grew year-on-year in the first quarter. The CarbonSmart, sales from our current chemicals customers supported this growth and on the JDA and Contract Research side, the performance was driven by several customers and government grants which are typically multi-year duration. Biorefining revenue declined year-over-year in the first quarter to $5 million but saw strong contributions from engineering services revenue across projects of both early and advanced stage engineering as well as some startup services associated with the ArcelorMittal in Belgium.

Importantly, the decline year-on-year in Biorefining revenue was anticipated and is attributed to the uneven nature of revenues earned in the early development stages of each project which currently dominates Biorefining revenue mix. Notably, we expect the composition of a revenue mix will become increasingly smooth and consistent as we continue to add project opportunities and more projects come online building our current revenue as a larger percentage of our overall revenue mix.

With respect to margins during the quarter, our focus on revenue quality continued during the first quarter grabbing gross profit improvement of 87% year-on-year to $3.5 million. This improvement reflects a higher mix of high margin engineering services work and JDA and Contracts resulting in first quarter gross margins of 34% of approximately 570 basis points over the full year 2023 gross margin.

As mentioned previously, we continue to expect gross margin to be in the mid to high 20s for the full year 2024. On the expense side operating expenses declined 14% year-on-year in the first quarter coming into $29.6 million largely reflective of the one-time expenses in the first quarter 2023 associated with our global transaction.

Sequentially operating expenses increased due to slightly higher personnel expense and research and development in SG&A and reduced bonuses in Q4, 2023 and Q1, 2024 severance costs associated with the previously announced reorganization.

As Jennifer noted, the executive reorganization that we announced last quarter simply and the newly reorganized functions are exploring, implementing efficiency and accountability improvements throughout the organization. The associated cost savings initiatives are also well underway and on track deliver the previously estimated full year cost reductions.

CapEx spend during first quarter 2024 totaled $1.3 million and we continue to project CapEx for the full year 2024 to be consistent with or below our CapEx for the prior couple of years.

Turning to adjusted EBITDA and cash flow for the quarter, as expected our adjusted EBITDA loss increased quarter-on-quarter in the first quarter to $22.1 million largely as a result of the lower Q1 revenue and gross profit as compared to the fourth quarter 2023.

Our total cash burn in the quarter was $29.2 million which was up quarter-over-quarter as a result of the lower revenue and larger adjusted EBITDA loss. It was also materially impacted by a number of large annual payments including 2023 incentive compensation, 2024 insurance premiums and others that are expensed throughout the year but are paid in Q1.

Importantly we also expected to invoice and receive a multi-million dollar payment in a quarter associated with one of our government contracts, but some administrative contracting issues span the end of the quarter resulting in a simple delay in this payment. As a result we do not believe that this burn rate is indicative of our average quarterly burn rate for the full year 2024.

Turning to the balance sheet. As of March 31, 2024 we had $92.3 million of cash on hand including cash, restricted cash and investments and in quarter with more than $92 million of cash on hand we remain confident that we have the financial flexibility to execute our plan and deliver on our primary objectives outlined for the full year 2024.

With that said, we're also announcing today the filing with the SEC of a registration statement on Form S3 that includes a prospectus offering for an At-the-Market or ATM issuance for up to $100 million in the company's company shares.

We recently passed the one-year anniversary of the completion of our business combination and became eligible to do so, we believe that having a universal shelf S-3 on file is good corporate housekeeping and the ATM provides us with a tool to opportunistically access additional capital even though we have no plans at present to utilize it.

While we believe we have sufficient liquidity to execute on our near-term objectives and obligations, we will also continue to opportunistically and patiently explore other strategic financing alternatives to ensure we are best positioned to achieve our longer-term growth objectives.

Pursuing these additional financing options enables us to maximize potential opportunities that could further supplement our financial flexibility as we continue to explore strategic opportunities to accelerate our growth and path to profitability.

Looking ahead to the second quarter and the rest of the year we continue to anticipate a strong quarter-over-quarter revenue ramp with an expected 20% to 40% quarter-over-quarter growth in Q2 and a very strong back half in the year underscored by the expectation of moving multiple projects in the later stages of development and in the construction.

As Jennifer mentioned earlier as outlined on slide 11 we are reiterating our full year 2024 guidance of $90 million to $105 million in total revenue with full year growth across all components of the business and an obviously significant back-and-weighted shape to the year, as well as negative $65 million to $85 million on adjusted EBITDA.

We anticipate the biorefining revenue growth will come from ongoing and new engineering services revenue as well as the sales of equipment packages related to several projects to be expected to achieve final investment decision and proceed to the construction phase in 2024.

Biorefining will also be bolstered in 2024 by the anticipated kickoff of Project SECURE, our DOE funded project with Technip for the decarbonization of ethylene production and the multiple opportunities that we are working on to address the growing demand for SAF including the projects we are co-developing with LanzaJet and the broader need for waste-based ethanol as an enabler of Alcohol-to-Jet globally. Finally we continue to anticipate moderate year-on-year growth in CarbonSmart business and our JDA and Contract Research business.

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

Jennifer Holmgren

Thank you Geoff. Our performance is not just a set of numbers it's a tangible manifestation of progress in the field where every small victory has a significant impact. We are at the vanguard of an industry that is as challenging as it is essential.

The opportunities before us are not only progressing but are the cornerstone in creating a new carbon economy. This quarter was a good quarter and I want to close with coming back to the five key takeaways I outlined at the outset of the call.

First, we delivered financial results for the first quarter right in line with our guidance provided last quarter. The second, Project SECURE was a huge win and we're excited about the project and the replicability of this technology integration.

Third, SAF continues to be an enormous demand for waste-based ethanol and we are well positioned in this massive sector. Fourth, our commercial project pipeline is growing and progressing and finally a reiteration of our full year 2024 financial and operating guidance.

Thank you for your continued trust and support. Together we're not simply participants in this economy we are the architects and builders laying down the foundations for a sustainable future.

Operator, we can now open the line for Q&A please.

Question-and-Answer Session

Operator

Certainly, Dr. Holmgren. [Operator Instructions] We go first this morning to Leo Mariani at ROTH MKM.

Leo Mariani

Hi guys. I wanted to just start off on the revenue side here. So if I heard you guys right you're expecting roughly 20% revenue growth in 2Q versus 1Q here. But kind of do the math that gives me about 23% of your revenues in the first half kind of relative to your midpoint of your full year revenue guidance. Given that can you just kind of elaborate a little bit on kind of what you expect to hit in the second half of '24 which obviously has pretty big significant ramp to hit that guidance this year?

Geoff Trukenbrod

Yes. Good morning Leo and thanks for being on as always. So yes, we quoted a little bit of a range for Q2 so 20% to 40% growth over the first quarter just to reiterate that. So there's a little bit of variability there in Q2 as well as timing of projects as well. But yes, that does certainly suggest that we expect a large ramp in the back half of the year. We did reiterate our guidance, so we do expect to be earning those revenues in the back half. It's a function of a combination of things including a variety of projects moving kind of into the construction stage as well as ongoing projects that have already moved into it as well as the other components.

Leo Mariani

Okay. And just on the cost side, I hope you could help me out a little bit here. So I'm looking at it just on kind of the key cash costs. If I take R&D plus cash G&A, it looks like that was up about $3.2 million in the first quarter versus the fourth quarter. I got the sense that there maybe there were some one-time costs in there, some severance, and maybe some others. Could you quantify what the one-time costs are? And then is your expectation for those kind of key costs to start dropping here in the second quarter?

Geoff Trukenbrod

Yes. And there's two aspects of it. One was the they're -- in the SG&A and R&D costs, these are largely a function of personnel costs. These are headcount costs largely. And so in Q4 they were slightly down. As you recall we cut back our bonuses in 20 -- associated with 2023. So that resulted in a reduction in cost in Q4 of last year. Normalized for Q1 it's slightly up as well as there were as you noted some one-time costs, some severance costs associated with the reorganization that we announced in Q4. I'm not going to get into the specifics of the severance cost, but we do expect those to be one-time and that will be built -- that will trail off the rest of the year.

Leo Mariani

Okay. So you're saying that your kind of cash costs are going to start going down here in the second quarter?

Geoff Trukenbrod

We expect the cash costs for those line items to reduce going forward.

Leo Mariani

Okay. That's helpful. Thanks guys.

Geoff Trukenbrod

Thanks Leo.

Operator

We'll go next now to Jason Gabelman of TD Cowen.

Jason Gabelman

Yes. Hey morning, thanks for taking my questions. I wanted to ask about the project pipeline and some growth that you mentioned nine projects added to that pipeline. I was wondering if you could give us some flavor for what those projects were, and if you expect to maintain that kind of pace in terms of projects being added to the pipeline or that will be lumpy again as well I should say quarter-to-quarter? Thanks.

Jennifer Holmgren

Let me address that. The project pipeline just because it's early stage for us will be a little lumpy initially. However, we are adding projects both to the top of the funnel and getting projects through to FID. So we do expect to see construction this year. The projects that are being added to the front of the funnel however are cut for me to discuss this specific partners because of the fact that a lot of those are still not named partners. However, we are starting to also see interest from companies to start replicating projects. We've done that in China. We have four projects with the same partner. And we're starting to see filling up the funnel with partnerships related to companies that are already building plans.

Jason Gabelman

Got it. Thanks. And my second question is just on the earnings outlook. I think you have previously mentioned breakeven EBITDA in 2025. Is that still your expectations and any other color around that in terms of growth from '24 to '25? Thanks.

Geoff Trukenbrod

Hey, Jason, thanks for the question and for being on. As you know we haven't provided any guidance beyond 2024. Specifically at this point in time we do think our path of profitability is a function of growth. And our expectation is that the company will continue to grow significantly year-over-year. And as we grow the top line in the associated gross profit that will drive our ability to get to profitability, but again, just we haven't been specific about our guidance for anything beyond 2025 [ph].

Jason Gabelman

All right. Great, thanks for the answers.

Operator

We'll go next now to Thomas Meric with Janney Montgomery.

Thomas Meric

Good morning. Thanks for the time and taking the question. A couple for me on the SAF market. Firstly, what's your assessment of the current SAF feedstocks in terms of supply, demand and really cost to use it? And then, how do you expect that to change in the coming quarters? And then second one on SAF, just share your thoughts and reactions to the recent Greek model, if anything stood out to you there? And then one follow-up on Brookfield after that.

Jennifer Holmgren

Sure, let me start and thank you for the question, Thomas. On the SAF market, we continue to see demand for waste-based feedstocks as a key priority. I think you saw the UK government incentives and targets, and they really grow in terms of SAF demand, but also they disproportionately grow the non-HEFA, in other words, the non-oil stats and greases demand vectors, so you're really starting to see people talk about shifting to waste demand, waste feedstocks.

The fact is that we're very well positioned in that since all we use are waste feedstocks; however, I would also say that in generally, these types of feedstocks can be more expensive. And so, what's happening is that the

mandates are slowly increasing the waste inputs so that they are creating a market without unduly pushing towards waste. So we're really excited about how that's happening, and it's happening globally.

We're also excited about the fact that e-fuels, CO2 plus hydrogen, are also being incentivized disproportionately in favor of trying to create that industry, and as you know, coupling LanzaTech and LanzaJet using CO2 as feedstock is something we can do because e-fuels is a path for us to make ethanol, that ethanol then can be converted to SAF by LanzaTech, so we're seeing more and more incentives, but we also find them to be quite measured in that -- and governments are being realistic and saying, when are these things going to be ready, and they're not ready, they're not in the market today, but they will be in the next few years, or at least that's our intention and that's what our project portfolio would say.

The second thing I would say to your question, the second question you asked, was the Greek model, and as you know, what the Greek model use has done, the White House has sent out a direction around that, and the bottom line is it enables corn ethanol, if certain measures are utilized to reduce the carbon intensity of corn ethanol, to qualify and to be used for the production of sustainable aviation fuel. So we think it's a big win both for corn producers here in the United States, corn ethanol producers here in the United States, because it shows them the path by which they can also participate in a market that was difficult for them to participate because there was no clear picture on how they could reduce their carbon emissions, and so the White House basically has shown a path that enables them to participate. Hopefully, that addresses your questions. I think you also wanted to ask about Brookfield, so I'll pass it back to you.

Thomas Meric

Yes, thank you. On Brookfield specifically just thinking about the unlock of future projects and I'm wondering if you could comment on the potential for additional project FIDs after the first one gets transferred?

Jennifer Holmgren

Right. So, we do have a very robust pipeline of projects that can go into our Brookfield pipeline, if you will. What we are doing is focusing on the very first one for a reason, right? This will be our first project and defining all the parameters that we need to define to transfer the project. If something we're doing lockstep in them, we'll work very closely with them and we're understanding each other on what makes a good project and what is it that they need to see for them to pick it up.

So while we have a robust pipeline that we are moving along in certain parameters like getting gas agreements and other such things, we have focused on only one project, so, that we're clear on how to transfer. The other thing that I think is quite important is that with the Brookfield pipeline, we are able to look at projects in North America more and more and as well as Europe and the UK. But we're starting to see a lot of interest in North America, so we're super excited about using the Brookfield approach and partnership to enable those projects to move forward.

Thomas Meric

Thanks. That's it for me.

Operator

Thank you. We go next now to Jeffrey Campbell of Seaport Research Partners.

Jeffrey Campbell

Good morning and congratulations on all the positive developments. I wanted to ask a few questions about Project SECURE. First of all, I think you gave us an ethylene output number for the project, but I was wondering what would be the likely ethanol output from a plant costing $400 million to construct?

Jennifer Holmgren

So the output of the plan besides to that ethylene production number, this is meant to be an ethylene producer, so all the ethanol will go straight into the ethanol to ethylene plan. The yield losses are less than 15%, so basically the ethanol number is very close to the ethylene output number.

Jeffrey Campbell

Maybe I should rephrase the question. What I'm trying to understand is how does the LanzaTech plant for this project compare to your typical $50,000?

Jennifer Holmgren

Yes, thank you for the question. It's $50,000 tons per year. This is an ethanol plant of the size, $50,000 tons per year and all of the ethanol will go straight to ethylene. Yes.

Jeffrey Campbell

And are you and Technip looking to construct projects of approximately that size going forward, or can smaller units be profitable?

Jennifer Holmgren

So, we can go both smaller and larger. And what we're starting to do is we're going to have standard sizes. So the $50,000 is one of our standard sizes, as you know, Jeff, because we use that in multiple of our projects. We also have one that is approximately half of that size that we're now using as a standard, and then we can also go bigger. So what we are trying to do now, especially in this partnership with Technip, and more and more as a company, its create standard units rather than bespoke units, because that will allow us to do the engineering package and work with EPCs [ph] in a way that goes much, much faster than trying to customize size for every opportunity. So if that is your question, that is exactly what we're doing, and that $50,000 is there for that reason, Jeff.

Jeffrey Campbell

No, that's a great answer, and I appreciate the color on moving away from bespoke. It sounded, Geoff remarked, if I heard them correctly, it sounded like there might actually be some revenues from projects that are here at some point in 2024. Was that correct? And if so, is it included in current guidance, or would this be in addition to guidance?

Geoff Trukenbrod

So thanks for the question, Jeff. And yes, we do anticipate currently that we will be in seeing revenues associated with Project SECURE in the back half of the year. There is a -- the timing associated with finalizing and administrative contracting associated with that is the piece that's the time uncertainty. We're working hand in hand with the DOE to accelerate that, but we do expect to start work in the back half of the year. That is included in our guidance. As again, as I mentioned earlier, we do probability adjust our forecasts, and so we expect that to leave us in the range. So we're not adjusting our range at this point in time, but we do feel good about having additional committed revenues in that.

Jeffrey Campbell

Okay. Let me ask one SAF question, and then I'll get off. I was just wondering, how are you going to manage the allocations of the LanzaJet production once it starts coming to market in the second quarter or '24 and beyond?

Jennifer Holmgren

Actually, we have 10-year offtakes. LanzaJet has 10-year offtakes for all of that fuel. So the production is spoken for, and it will be managed in a way that's fair to each of the offtakers so that they can get their share without one of them being first in line all the way through the year. But that is one important element of that plan is that the offtake is 100% spoken for.

Jeffrey Campbell

Got you. Appreciate it.

Operator

Thank you. [Operator Instructions] We'll go next now to Steve Byrne of Bank of America.

Steve Byrne

Yes, thank you. I was just curious about the choice of an ethylene cracker for this Project SECURE. Have you already done some pilot testing on the furnace flue gas at a cracker? I'm curious about that CO to CO2 ratio, and perhaps having it at a cracker you got the hydrogen coming off of the cracker that could also help. But I guess ultimately, do you have a view of where the variable cost could be for the production of this ethylene?

Jennifer Holmgren

Let me start with that. Thank you for the question, Steve, and very well noted these points. So first of all, that's right, often petrochemical complexes are a little bit long on hydrogen. So there is some hydrogen co-production off of the cracker that we could utilize in that integration. The second thing that's worth noting in terms of variable cost is the fact that at the end of the day if we are to bring in hydrogen, which we intend to do a green hydrogen into this, that will be the biggest driver of cost.

And so the amount of green hydrogen will impact the cost of production. Why integrate into a cracker? First of all, we know we can use that CO2 from that plant. We have looked at that gas very carefully, the contaminants as well. So that is a very nice integration opportunity for us. But what's even more important is the cracker itself is an integration opportunity. And the reason I say that is, as you know, we've done quite a bit of work with technique on ethanol to ethylene. Technip actually made the ethylene from our ethanol for the EVA, the foam for the work that we did with on shoes.

So we've already partnered with them on making ethylene for materials production, if you recall, for the realist and took that ethylene and made the EVA. But if you take a step even further back, of course, you know, the hummingbird, the ethanol to ethylene from Technip, is also the first step in their sustainable aviation field production. So not only do we know that we can use the gas from the cracker, we know that our ethanol output integrates very nicely with technip.

One of the gas that we have had is that we have been producing the ethylene at a different location than the ethanol. Transporting ethanol can add cost. And so our materials that are produced, there is a supply chain cost. By integrating directly into a cracker, there is no additional supply chain or movement of the ethanol cost. And so, we believe this is how we can drive the cost of making materials from our CO2 derived ethanol, drive those costs down. And of course, the other beauty of integrating into a cracker is that most crackers in a petrochemical complex also are integrated with further downstream production, whether it'd be polyethylene, MEG for polyester, or EDA, or even PVC. And so for us, that integration means that immediately our ethylene can be used in a mass balanced way with the rest of the ethylene produced in the cracker.

And as you can see, it's just a beautiful way to start to both reduce the CO2 emissions with a cracker, but also integrating to the back end, into the ethylene production. So we think this is just a beautiful, replicable way to get ourselves to a point where we produce materials from CO2.

Steve Byrne

Yes, makes sense. Thank you. I'd like to take a similar question on the off gas from an ethanol plant. You mentioned a few minutes ago about the ethanol industry is trying to move down to more decarbonizing the ethanol and lowering the CI score. I'm just wondering, conceptually, could the other approach to decarbonize an ethanol plan is to use your technology on the ethanol flue gas? I guess I'm wondering whether or not there's very little CO and it's CO2, and that's maybe more challenging. But you could build that at an ethanol plan and convert that into SAF?

Jennifer Holmgren

Absolutely. And so to begin with, right, you are correct that we can use that CO2. 45% of the carbon that goes into an ethanol production facility, sugar-based production facility comes off with CO2. And you said it might be harder than CO for us to convert it. And the difficulty is just making sure we have hydrogen available. But a lot of corn ethanol production or other ethanol production in the United States and in Midwest is surrounded literally by wind nodes, right, wind farms. And so there is access to renewable power. There is access, therefore,

to the production of hydrogen, and so, converting that CO2 to ethanol is actually not any harder than converting CO.

The second thing I would say is, as there is more and more resistance and concern about pipelines to take CO2 and sequester it, that means that there is an awful lot of CO2 on the back end of ethanol plants that could be reutilized to make more ethanol, reducing the carbon intensity of the original ethanol and also enabling more ethanol to be produced so that we can make SAF. So you hit it right on the head. The beauty of that CO2 as well, by the way, is that it's biogenic. And so globally, there are a lot of drivers to reusing biogenic CO2 versus necessarily fossil-derived CO2. So it's a massive win.

We are really excited about working with the industry to increase yield from the same input by utilizing CO2. And I hope that you see that as a theme to everything LanzaTech does, it's all about making more products from the same raw materials, whether it's CO2 on the back end of the corn ethanol plant, whether it's CO2 from the cracker. At the end of the day, our goal is to use every last bit of carbon to make products to reduce both carbon intensity, but also to reduce raw material inputs.

Steve Byrne

Very clear. Thank you.

Operator

Thank you. [Operator Instructions] And ladies and gentlemen, it appears we have no further questions today. Dr. Holmgren, I'd like to turn things back to you, ma'am, for any closing comments.

Jennifer Holmgren

Thank you. It cannot be overstated that pioneering a new path in the energy sector is rife with complexities. We're altering the very paradigm of energy production and utilization. A task that is as formidable as it is inspiring. Infrastructure, perceptions, and, yes, legislation are yet to be fully aligned with the innovative process that we are championing. It's important to remember that movement creates friction. And as the first of the kind in this space, we've chosen to lean into that, into that friction, because we believe that is where true progress is made.

Thank you again for joining us. Thank you again for supporting us. Thank you again for giving us the opportunity to show what we can do with carbon that's already above ground with waste carbon. Thank you.

Operator

Thank you, Dr. Holmgren. Ladies and gentlemen, that will conclude today's LanzaTech Global First Quarter 2024 earnings call again. Thanks so much for joining us and we wish you all a great day. Goodbye.