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WOLF.N - Q1 2023 Wolfspeed Inc Earnings Call

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OVERVIEW:

Co. reported 1Q23 revenue of $241.3m and adjusted loss per share of $0.04. Expects 2Q23 revenue to be $215-235m and diluted loss per share to be $0.16-0.08.

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PRESENTATION

Operator

Hello, and welcome to the Wolfspeed Inc. First Quarter Fiscal Year 2023 Earnings Call. My name is Harry, and I'll be your coordinator today. (Operator Instructions) It is now my pleasure to hand you over to Gregg Lowe, CEO, to begin. Please go ahead.

Tyler D. Gronbach - *Wolfspeed, Inc. - VP of IR*

Thank you, operator, and good afternoon, everyone. Welcome to Wolfspeed's First Quarter Fiscal 2023 Conference Call.

Today, Wolfspeed's CEO, Gregg Lowe; and Wolfspeed's CFO, Neill Reynolds, will report on the results for the first quarter of fiscal year 2023.

Please note that we will be presenting non-GAAP financial results during today's call, which is consistent with how management measures Wolfspeed's results internally. Non-GAAP results are not in accordance with GAAP and may not be comparable to non-GAAP information provided by other companies.

Non-GAAP information should be considered a supplement to and not a substitute for financial statements prepared in accordance with GAAP. A reconciliation to the most directly comparable GAAP measures is in our press release and posted in the Investor Relations section of our website, along with a historical summary of other key metrics.

Today's discussion includes forward-looking statements about our business outlook. We may make other forward-looking statements during the call. Such forward-looking statements are subject to numerous risks and uncertainties.

Our press release today and the SEC filings noted in the release mention important factors that could cause actual results to differ materially, including risks related to the impact of the COVID-19 pandemic.

During the Q&A session, we would ask that you limit yourself to 1 question and 1 follow-up so that we can accommodate as many questions as possible during today's call. If you have any additional questions, please feel free to contact us after the call.

And now I'd like to turn the call over to Gregg.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Thanks, Tyler, and good afternoon, everyone. The growth in demand for our power device product line is greatly outpacing anything we would have anticipated only a year ago.

At our last Investor Day, we said Wolfspeed was well positioned to capitalize on the increasing demand for EVs, industrial and 5G. We described 2022 and 2023 as an inflection point in the adoption of silicon carbide with accelerated growth beginning in 2024.

Clearly, adoption is well ahead of schedule, creating an even greater demand supply mismatch than we had discussed previously. Fiscal Q1 revenue grew 54% year-over-year, our second straight quarter of greater than 50% top line growth when compared to the prior year period.

Our device opportunity pipeline has increased to more than $40 billion, more than double the $18 billion that we talked about at our last Investor Day. And our sales team continues to convert this pipeline at an impressive clip and posted another record quarter in Q1 with $3.5 billion of design-ins.

Our last 4 consecutive quarters of design-in, each of which was a record at the time totaled approximately $9.3 billion, which is 3.5x higher than the prior period. We continue to see strong demand for our power devices with Q1 revenue up more than 120% year-on-year.

The team in Durham has done an absolute best to ramp production and expand capacity. But running a manual fab has its limitations, and we are seeing lead times extend for tools and replacement parts for fab equipment, which is impacting our ability to align with customer needs.

And lastly, as part of an ongoing effort to expand supply of silicon carbide. The team was successful in increasing the length of pools through our continuous improvement efforts, which will help drive more wafers going forward to meet the immense demand for silicon carbide substrates.

While this will help alleviate some supply constraints, we're still refining some of our back-end processes for the longer poles and this will impact yield for the next couple of quarters. We're entering a period of significant expansion and are experiencing the associated growing pains.

If you think about where we've come from in the last 5 years, from a $200 million semiconductor business back in 2017, to a global semiconductor powerhouse that is expected to generate over $1 billion of revenue in fiscal 2023 on the way to approximately $2.8 billion in fiscal 2026. It speaks to the massive amount of change we are driving across the business in a relatively short period of time.

Now I'd like to turn it over to Neill to go over the quarterly financials, the second quarter outlook and provide more details about our updated expectations.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Thanks, Gregg, and good afternoon, everyone. I'll start by providing an overview of the first quarter.

We generated revenue of $241.3 million in the first fiscal quarter of 2023, which represents a 6% sequential improvement when compared to the $228 million in the fiscal fourth quarter of 2022 and growth of 54% year-over-year, driven largely by growth in all product lines and the market tailwinds Gregg referenced earlier.

Underpinning the revenue growth is our design-in portfolio, which, along with the additional $3.5 billion this quarter, now sits at $14.5 billion cumulatively. Approximately 43% of our design-ins have converted into design wins, representing more than 1,600 projects.

Non-GAAP gross margin in the first quarter was 35.6% compared to 36.5% last quarter and 33.5% in the prior year period, representing a 210 basis point improvement year-over-year.

Our gross margin in the quarter was impacted by issues related to our wafer manufacturing process to accommodate longer bull sizes. Related to the Durham fabs, we believe we can continue to improve productivity and performance but we are reaching our capacity and capability limits and future significant step-ups in revenue and gross margin will come primarily from the Mohawk Valley fab.

However, the Durham wafer fabs will likely remain fully utilized for the foreseeable future as customer demand remains strong. In addition, as it relates to RF, we were unable to transition from 100-millimeter to 150-millimeter wafer sizes due to the overwhelming demand for our products which has kept our factories full, leaving us essentially no factory downtime to make the transition.

Given the strong demand for our products, we don't anticipate making this transition for at least several years. As such, RF device products currently represent an approximately 300 basis point drag to our overall company gross margins.

It's important to note that although RF products represent approximately 20% of our business today, it will represent only approximately 10% of our business over the long-range plan period. Therefore, we expect this impact to dissipate over time, but it will dampen gross margins in earlier periods of our long-range plan.

As a result of these impacts to our gross margins, we generated adjusted earnings per share of negative $0.04 in the fiscal first quarter compared to negative $0.02 a quarter ago and negative $0.21 in the same period last year.

Now before I discuss our guidance, let me provide a quick overview of our balance sheet position. We ended the quarter with approximately $1.2 billion of cash and liquidity on our balance sheet to support our growth plans. DSO was 50 days, while inventory days on hand was 135 days, which is 2 days lower than Q4.

Free cash flow during the quarter was negative $79 million, comprised of negative $13 million of operating cash flow and $66 million of capital expenditures. During the quarter, we incurred start-up costs primarily related to Mohawk Valley totaling approximately $38 million which is in line with our expectations we outlined from last quarter.

We expect an additional $34 million of start-up and underutilization costs in the second quarter. We included a non-GAAP adjustment for these start-up costs and a reconciliation table in our earnings release.

Now moving on to our fiscal second quarter outlook. We are targeting revenue in the range of $215 million to $235 million. We continue to see increasing demand for our products, both in the short and long term, but our revenue outlook continues to be supply and capacity driven.

From a supply perspective, we expect our revenue to be impacted by lower yields in our materials business, as previously mentioned, and we are also seeing longer lead times on spare parts reducing tool availability and output in our Durham fab.

We believe we are making steady progress on improving the materials yields. And based on current lead times, we expect to see fab output recover by early fiscal Q3. Our Q2 non-GAAP gross margin is expected to be in the range of 33% to 35%.

We expect gross margin will be similarly impacted by the material substrate yields previously mentioned driving performance down approximately 160 basis points quarter-over-quarter. Therefore, we believe our revenue and gross margin growth trajectory to be delayed 1 to 2 quarters as we resolve the yield and supply challenges we are currently experiencing.

We do, however, expect revenue and gross margin expansion to resume in the back half of the fiscal year and anticipate achieving the $1 billion revenue quarterly run rate early in the back half of the fiscal year. We expect non-GAAP operating expenses of approximately $97 million for the second quarter of fiscal year 2023, and we expect Q2 non-GAAP operating loss to be between $26 million and $15 million.

We believe that we will realize approximately $5 million of non-GAAP tax benefits as a result, expect Q2 non-GAAP net loss to be between $20 million and $10 million or a loss of $0.16 to $0.08 per diluted share.

Our non-GAAP EPS target excludes acquired intangibles amortization, noncash stock-based compensation, project transformation and transaction costs, factory start-up and underutilization costs and other items outlined in our press release today.

As always, our Q2 targets are based on several factors that could vary greatly, including the situation with COVID-19, overall demand, product mix, factory productivity and the competitive environment.

During the quarter, we also announced plans to construct the world's largest materials factory, Siler City, North Carolina, and we are also evaluating further expansion of our device capacity.

The construction of this new North Carolina facility will require significant investment from our end. We believe that it's prudent at this time to increase our CapEx guidance from $550 million last quarter to approximately $1 billion for the fiscal year 2023 to reflect the increased investments and support the higher revenue growth we outlined on last quarter's earnings call.

We continue to explore multiple avenues to finance these capital investments and are extremely encouraged by the conversations we have had to date. Our shareholders are top of mind in pursuing this funding. So we will explore all options with a goal of minimizing both our cost of capital and dilution.

As a reminder, we have many funding paths at our disposal, most of which have little or no dilution impact. This includes government incentives, customer capacity upfront payments, and private or project debt based financing as well as going to the public markets as we have done previously.

We are currently focused on the less dilutive financing options, and we will continue to remain flexible as we manage through variation in the capital markets. What is clear is that demand for our product continues to be strong, both in the short and long term, and we will continue to invest in capacity to address this multi-decade growth opportunity.

With that, I'll pass it back to Gregg.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Thanks, Neill. We are very encouraged with the market trends and with our progress to capture a sizable share of the opportunities in our pipeline.

One of the things underpinning our confidence is the breadth of our total design-in portfolio. The electric vehicle has been and will continue to be the driving force behind the broad adoption of silicon carbide. As industry supply scales and cost decline, this is also opening up the door for other applications in the industrial and energy sectors.

Just to get a sense of our Q1 design-in profile, approximately 90% was tied to automotive, whereas the remaining 10% was for industrial and energy and RF applications. The Q1 design-in total is a 9x increase for automotive year-over-year. And Industrial and Energy and RF increased more than 95% from a year ago.

This quarter's design-ins include an interesting range of applications, including weather radar, wireless EV bus charging, a welding machine and a motor drive application. To service this rapid growth in demand for silicon carbide, during the quarter, we announced our Siler City materials factory, which will be the world's largest silicon carbide factory when it opens up in 2024.

The substates produced there will help drive down the cost of devices and expand silicon carbide adoption across even more markets. Our new materials factory in combination with our plan to build out both the remainder of our Mohawk Valley factory and yet to the announced second fab will support this goal and should help us achieve significant scale.

And speaking of Mohawk Valley, the fab continues to make great strides in its ramp. During the quarter, we successfully ran full flow lots in the fab. And not only have we been able to run these lots, but we are very encouraged by the yields we are seeing at such an early stage.

We are still on track to deliver devices from Mohawk Valley in the second half of fiscal 2023 and plan to share an update on our progress at our Investor Day on Monday. The multi-decade opportunity in power devices requires far greater capacity investment and as soon as possible.

We will continue to address near-term puts and takes in Durham and RF as we continue to bolster our leadership position in silicon carbide. We will need to raise a significant amount of capital which will go towards investments in the necessary infrastructure to support growth.

As a result, free cash flow generation will be pushed out a few years. Margin progression will likely be muted in the near term due to the Durham and RF dynamics mentioned earlier. However, we continue to believe Mohawk Valley will help improve margin trajectory as it comes online.

This fiscal year, demand for our products continues to outstrip supply and our revenue will be gated by the speed at which we can increase output. That being said, we still expect top line year-over-year growth north of 30%.

When I started at Wolfspeed 5 years ago, a key theme of RF with refocusing the business. I am proud of the progress the team has made in that regard, but there is more work to be done. There will be challenges driven by the unprecedented demand in silicon carbide but overall, we are extremely encouraged by the dynamics that underpin these challenges.

I look forward to discussing these topics in more detail during our Investor Day on October 31 at the New York Stock Exchange. We'll give further update on our strategic initiatives and long-term financial model. If you have not registered for the Investor Day, please do so by this Friday by contacting our Investor Relations team.

And now I'll turn it over to the operator for questions.

QUESTIONS AND ANSWERS

Operator

(Operator Instructions) Our first question of the day will come from Harsh Kumar of Piper Sandler.

Harsh V. Kumar - *Piper Sandler & Co., Research Division - MD & Senior Research Analyst*

So question on the near term. Gregg, when I look at your business, all the design-in -- design win trends are pointing upward. But I'm looking at the December quarter guidance, which is sequentially down. I know you mentioned a handful of things such as spare parts availability, also the longer bulls.

I was curious, is this what is impacting your ability to be able to grow in the December quarter? And then just -- or is there something else that's going on, that's worth noting? And then I had a follow-up.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Thanks for the question, Harsh. Yes, it is exactly that. Basically, it's taller bulls and some yield issues we have processing them in the back end and the lead time on spare parts of older fab equipment inside the factory.

It's basically, it's those 2 issues that are limiting our output. Our near-term demand from customers is up as is our longer-term demand. In fact, our unfulfilled demand is increasing this quarter due to this limitation that we have. So that's exactly what it is.

I might mention, though, that taller are a really good thing. And as we've done a really good job of refining the back end of our process here. So as we come out of that and we have deals back to where we believe we can get them to be -- these taller (inaudible) are going to be a substantially good thing for us.

Harsh V. Kumar - *Piper Sandler & Co., Research Division - MD & Senior Research Analyst*

Got it, Gregg. And then for my follow-up, Gregg, I wanted to ask about the gross margin. A similar sort of question. I was curious if you could sort of like split the gross margin difference on the downtick between, hey, is this a bigger problem that's coming from the longer bulls? Or is this a spare parts issue? And also maybe help us think about some color on when these issues might get resolved, Gregg, if possible.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Harsh, it's Neill. I'll take a shot at that. I think if you look both at revenue and gross margin, the issues are really the same, the same 2 things that we're seeing. .

The output related to the rule has been challenged is based on the yield. We'll see that impact both revenue and gross margin, although I'll say that I think we hit the bottom there on the yield issue. We're starting to work our way up. So we're kind of flushing through some of that higher cost inventory as we start to manage through this.

I'd say the same thing in terms of the Durham fab production. We have some tool availability challenges related to shortage of spare parts and older equipment. We've been impacted by some supply challenges clearly and that's something we've really avoided largely in the last couple of years.

So you did by that a little bit here. That will drive our device revenue down quarter-over-quarter in the margins as well. But again, once we currently times come in, we'll start seeing production kind of pick up again on the fab. So I think in both cases, both revenue margin are being impacted by the same 2 issues.

I see these as being temporary in nature. It's kind of a 1-quarter dip in both revenue and gross margin -- and gross margin. And we see ourselves as returning to stronger revenue margin growth in 3Q and beyond, possibly even being at that kind of $1 billion annualized kind of revenue run rate by 3Q and really back on trajectory by 4Q. So you could think of these kind of manufacturing and supply issues just driving a 1 or 2 quarter impact on the revenue margin.

Operator

And our next question is from the line of Brian Lee of Goldman Sachs.

Brian K. Lee - *Goldman Sachs Group, Inc., Research Division - VP & Senior Clean Energy Analyst*

And then maybe just to follow up on Harsh's question. You sort of alluded to it a little bit, I think, Neill, but if we were trying to quantify the impact on the revenue outlook here for December, obviously, Gregg, you're saying your demand and unmet demand is higher.

But how much -- if you could quantify, I know it's a tough question is coming from yield and how much is coming from the supply challenges. And if I take your comments that you're going to be at a $0.25 billion run rate by fiscal Q3, does that infer your like $25 million off of the level you would have guided to had you not had these 2 issues? Just trying to unpack what the moving pieces are and how much they're worth? And then I had a follow-up.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes, it's hard to say exactly, Brian, but I think you're heading kind of in the right direction, so to speak.

I think from a yield perspective on the taller pools, like I said, we hit bottom there, we're starting to recover. We'll actually see substrate revenue start to increase going into this quarter. Just now that the trajectory we had previously anticipated. And then from a fab perspective, it's really a function of getting these tools up and running and the lead times we have on spare parts and getting them running.

We have the capacity. We have the tools. We need to run the revenue through them and then push it to the back end where we've got capacity as well. So it really is both on a revenue and margin perspective, these 2 issues are kind of slowing us down. And I think we'll come back up to that higher revenue trajectory you kind of referenced as we get to the back half of the year.

Brian K. Lee - *Goldman Sachs Group, Inc., Research Division - VP & Senior Clean Energy Analyst*

Okay. That's helpful. And then not to focus too much on the short term, but I think this does call into question kind of some of the cadences we're all modeling here through the next 1 year to 2.

When we think about gross margins, you made a comment, you're going to see some recovery into fiscal Q3 back to where I think you were trending before the yield issues. So 35%, maybe 36% non-GAAP, that's where you were before this temporary downtick.

Is that where we're headed back to in the back half or -- because I think the original trajectory might have called for something in the higher 30s, maybe even reaching close to 40% exiting this fiscal year. But what trajectory are we kind of getting back to if that's the way we should be thinking about this being a 1- or 2-quarter phenomenon before you get to higher margins in the back half?

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. Obviously, we're going to be lower this quarter, but I do see us starting to expand margin again and get back into Q3. It's a 1 to 2 quarter impact, Brian. So you kind of think of last quarter, we had some of that impact start. We're seeing more flush through here in Q2, you'll probably see some impact or maybe a less impact in Q3 as we start to expand again and then kind of back on track as it gets kind of a Q4 period.

Operator

And our next question is from the line of Jed Dorsheimer of William Blair.

Jonathan Edward Dorsheimer - *Canaccord Genuity Corp., Research Division - Former MD & Analyst*

So I guess, first question, -- and when you talk about elongated in the -- or lengthening the height of the pool, I'm not sure how well understood. But if you are going through a process change and have higher confidence in your recipe and elongate duration of growth, while near term, you're going to see a yield hit that should result in less operating and maintenance because you're not going to be cleaning out that oven or furnace to be more precise as many times during the year.

So I'm just wondering in the near term, as you see the hit on materials, I guess, would you mind unpacking sort of the benefit that you see too as to what's prompting you to make this move for the -- at the materials level? And then I have a follow-up.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Okay, Ted. I'll take that. We obviously have a continuous process improvement program across all of our different businesses, and this is part of that. We are very excited about the quality of the and the height of the bulls that we're now getting out of this process. So that is, we feel very, very good about that.

And what we're really talking about is handling in the back end of the flow that are sizably larger than what we historically have. So we -- as Neill said, we've made -- we've already talked about, we've got really good improvements in place, and we'll get back to where we need to be within a couple of quarters here.

So I think that's moving all in the right direction. And the benefit, Jed, is exactly as you alluded, I mean, basically, you're going to get more wafers for solar crystal and that will increase the output and decrease the cost. So these are -- as we -- as we improve the back end of the flow here, this is going to be a real good thing.

Jonathan Edward Dorsheimer - *Canaccord Genuity Corp., Research Division - Former MD & Analyst*

Got it. That's helpful in what I thought. So I guess, just as my follow-up question, with respect to Mohawk Valley, I was wondering if you would update if you don't mind, where you're at. I think the milestone was sort of running customer silicon.

And -- where are you at with Mohawk Valley to maybe help with confidence in terms of getting back to that or getting to the -- that run rate that you talked about?

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. So Jed, we've had a number of full flow wafer lots go through the fab. All of the full flow wafer through the fab have able to do electrical diode or good chips and we're very pleased with the yield numbers that we're seeing right now. That's all looking, I would say, as good as it can get, so to it's really looking pretty good.

And in fact, we have so much confidence that we're actually running material right now that is meant to qualify the fab. That is well ahead of any schedule that you would might imagine. So we're really excited about that. One on quality that customers we need to follow by the parts typically, that's something that most of our conductor companies have kind of grab the customer and kind of pull along with you on that.

I think with the supply-demand mismatch, we have a lot more customers that are volunteering to be sort of the first in the fab and they want to have their follow is, et cetera. So I would anticipate the customer qualification process to be different than normal. It would be probably a lot more of them jumping in and qualifying faster than normal. All that said is that we should be shipping revenue out of that fab by the end of this fiscal year.

Operator

And our next question is from the line of Samik Chatterjee of JPMorgan.

Samik Chatterjee - *JPMorgan Chase & Co, Research Division - Analyst*

I guess if I could just ask a clarification on the commensurative to Mohawk ramp. The supply issues or the issues on parts, et cetera, that you're referencing today. Just wanted to confirm here that is that impacting your ramp on Mohawk as well? Or is that an issue with sort of old parts or old equipment and not really something that carries over to how you're ramping Mohawk.

And relative to the same issue, Neill, you are sort of giving some guidance about when you see gross margin expand again, does that then include your thinking in terms of revenue and gross margin impact from Mohawk in the back half of this the impact as more comes into the non-GAAP number? And then I have a quick follow-up.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Thank you. I'll take the beginning part of that, and Neill can handle the back end of it. The spare parts issue is really related to older fab equipment in our term in our North Carolina where that's not anything to do with Mohawk Valley.

Recall, we began building Mohawk Valley in March of 2020. We started in selling equipment in 2021. We did a lot of preordering of long lead time type equipment. And a lot of this was done before other semiconductor companies decided to start building wafer fab. So we've actually done a pretty good job of getting on ahead of the long lead time items in Mohawk Valley.

And then finally, I would just add that those obviously are brand-new machines, modern equipment. We're not looking for spare parts for those machines and the availability of those in any case, would be likely a lot better than some machine that we've had in our factory for 20 years or so.

So bottom line is no impact on that at all in Mohawk Valley. And then you can at the back end of that margin.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. Just from a margin perspective, actually, I think, as Gregg kind of laid out, I think we're in good shape from a supply perspective in Mohawk Valley. And the yields that we've seen off these initial really positive. It's something we're really enthused about. So I think that just gives us more confidence about ramp.

And as I said many times, the margin trajectory, you kind of get in the back half of this year and then eventually into '24 and beyond, it could be largely based on Mohawk Valley and the initial signs of what's coming at that were very, very positive. So -- it will still be a little bit of a timing issue. We'll see what happens in terms of qualifications, as Gregg talked about, we're already starting material to that. But let's see what the timing looks like there.

But I think we're kind of all systems go and things were very oil from relocating back half of the year from a revenue perspective, and that will certainly help underpin the margin expansion as well.

Samik Chatterjee - *JPMorgan Chase & Co, Research Division - Analyst*

Got it. And a quick follow-up on the RF issue that you're highlighting relative to not being able to change over to 150 mm just because of high demand that you're seeing. I'm just wondering like, was that something that was sort of known for like you had more sort of insight into a few quarters ago and sort of decided that this was the quarter where you were going to switch over?

Like what was the exact sort of timing -- time lines that it played out? And because I would have assumed if you would switch over, you would have sort of buffered both in terms of margins and revenue in the quarter itself in terms of that change over time, but maybe I'm missing something there.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

I think that's largely correct. I think that a year ago, we were at our Investor Day because it's something that was in our plans. And I think as the demand has continued to strengthen and strengthen its leading our factories very, very full.

And from that perspective, we've kind of increasing demand. It's just really left us no option but to kind of delay that transition from 100-millimeter to 150-millimeter in the RF product because there really hasn't been any downtime. So the way I would think about it over the last months we've been kind of incrementally looking for opportunities to kind of make the transition, but the demand has gotten to such a point that we have fully been able to take the downtime and the downtime to kind of make go ahead and make that transition.

So what that means from a margin transition standpoint, as I mentioned in the prepared remarks, is at about a 300 basis point drag on margins as you think about getting to that kind of '23, '24 time frame, and we'll just kind of work with that as we got now. This is all, again, really just driven by the demand that we're seeing. So as you look out into the longer-term goal in 2016 and beyond, as I mentioned, Mohawk Valley, kind of 200-millimeter substrate and the power device cost structure still looks very good, but we just don't have a downtime to make a transition on the RF side as we're sitting here today.

Operator

Our next question is from the line of Colin Rusch of Oppenheimer.

Colin William Rusch - *Oppenheimer & Co. Inc., Research Division - MD & Senior Analyst*

Can you talk a little bit about the composition of these design-ins. How much of this is coming from medium and heavy duty and some of the higher-voltage applications that may be out there?

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

So this past quarter, 90% of the design-ins came from automotive, and we're seeing a tremendous positive adoption of silicon carbide in electric vehicles and a significantly steepening adoption of electric vehicles in the overall automotive market.

And those 2 things are driving it up and to the right. I think the car manufacturers are well aware that range is a really big deal for our customers and the rate at which you can refuel so to speak or recharge your car is a big deal.

Both of those drive higher voltages, which thank the impact of using silicon carbide over silicon, much more pronounced in a positive way. So I think all of those things are driving that adoption.

Outside of that, we have really whole of different designings across the industrial and the RF base applications. And we talked a little bit about what those ranges are.

And then finally, as Neill has mentioned, north of 40% of our design-ins to have converted to a design win. And that means customers are beginning to ramp in production. That is -- that combined with the amount of design-ins we've had is really kind of unprecedented. At least I've never seen anything like it.

We've done $3.5 billion of design-in this quarter, $2.6 billion last quarter, $1.6 billion and $1.6 billion 2 quarters before. There's $9.3 billion of design-ins we have is unprecedented and it's just driving an enormous increase in our revenue near term and certainly the revenue outlook.

Colin William Rusch - *Oppenheimer & Co. Inc., Research Division - MD & Senior Analyst*

Okay. And then just thinking about the cadence of potential debt financing, is that something -- how mature is that process for you guys now from a project level in terms of bringing some of that capital in to support this CapEx that for the balance of the year because it's a pretty healthy number that you guys are looking at spending.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

So just from a financing perspective, just let me just remind you that we've been far ahead of this we've got $1.2 billion of cash on the balance sheet. And in addition to lifetime with the capacity plan that we laid out a year ago at Investor Day, we've seen our kind of CapEx step down over the last quarters. You saw it was $56 million this quarter and just $55 million in quarter 4.

Now I do think our forward we'll start to see a step up in the capital expenditures kind of in line with what we're talking about. I think about that sort of pick up in the back half of the year. So we have a little bit of time to go work at this.

So still do need to go out and do some funding to support that. Dilution as it relates to that financing is absolutely on top of our mind. And there's really 4 buckets that we're looking at in terms of executing that financing, most of which are not dilutive.

The first is government incentives. We've been very close to both the governments in the United States and outside of the U.S. and we will be in a position to benefit significantly for incentives, both in our wafer fab expansion as well as the investment in materials factory in North Carolina.

We've also got $300 million of incentives remaining with our partnership with the State of New York. We're also working closely with customers and upfront payments for capacity. It is obviously not dilutive. And then we've also got private finance or project financing. And then lastly, moving on to public markets like we've done before.

So the lower dilution options on that list is where we are currently focused, just given that step-up in CapEx in the back half of the year. So we will want to get something done in advance of some of those bigger stands that we're talking about and the investments that we're making and that's what we're focused on right now. So we'll take this out in more detail as we get into our update in New York and New York next week.

Operator

Our next question is from the line of Vivek Arya of Bank of America.

Blake Edward Friedman - *BofA Securities, Research Division - Research Analyst*

This is Blake Friedman on for Vivek. Just want to focus on the materials business quickly. I know you've mentioned historically about holding 60% market share. in that business and not to get ahead of the Analyst Day, but I was just curious how feasible it will be to maintain this level of share as we see new market entrants and also an increasing number of vendors internally sourced capacity moving forward.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Yes, I'll take that. Basically, the silicon carbide market is growing very, very, very rapidly. And I think the supply is going to be chasing demand probably through the end of this decade.

We're just going to be tough to keep up with it. That obviously attracts people to the market. And certainly, all of our silicon carbide materials customers, I don't know all of them, but most of them have plans to trying to develop their own substrates and so forth.

And I think that's a smart idea, a good plan, and it's something that I would do if I was in their shoes. I think they'll probably find it a little bit more challenging than I would expect, I think that. But I think that's basically how we're thinking about it, and we're thinking that they're going to invest and deliver on what they set out to do. So that being said, we've had a modest thought process in terms of what we're going to do from a market share standpoint, basically hold share of that external market. And some of the internal demand would be satisfied by the internal capabilities of these companies.

Blake Edward Friedman - *BofA Securities, Research Division - Research Analyst*

Helpful. And then just as a follow-up as well. I know you mentioned the rapidly growing demand in silicon carbide. But also, I know one of your competitors out there is also seeing about $1 billion in committed silicon carbide revenue in 2023.

So just on the feasibility of the silicon carbide market even next year having multiple $1 billion vendors. Just your thoughts on that would be helpful.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

I think the demand is clearly outstripping supply. And I think to the extent that we can bring on collectively, the industry can bring on more supply, it's going to help things. The silicon semiconductor industry is clearly looking like it's going to see a cyclical downturn here silicon carbide has some secular trends that are just going to overpower that, I think, by far.

And that's the transition to EVs the transition to silicon carbide and clean energy, electric vehicles and so forth. So I think the demand for the industry is going to help supply through the end of this decade. And that's inclusive of us putting into action the world's largest silicon carbide factory with only 200-millimeter silicon carbide factory and installing a significant expansion in Siler City with that capacity coming on in 2024.

So even with all of those multibillion-dollar investments, I think the supply is going to be chasing demand through the end of the decade.

Operator

Our next question is from the line of Gary Mobley of Wells Fargo.

Gary Wade Mobley - *Wells Fargo Securities, LLC, Research Division - Senior Analyst*

On this issue relating to some challenges on the back end of handling some of these longer I'm curious to know if this may foreshadow maybe some transition issues as you move to 200-millimeter and related to this issue, is this for the supply of captive or merchant materials?

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

No, I don't see it related to that at all. In fact, in some respects, any process improvements that we make on 150, we typically can ship that to 200 and vice-versa. So I think it's a good thing. Having taller crystals means we're going to have a lower cost and it's just a matter of how you handle it in the back end.

And as Neill mentioned, we've gotten already a bunch of improvements in place not on the yield issue that we talked about, and we're heading back up north on there. So I think this is the proverbial good problem to have. We're super excited about the quality of the presales and the rate which we can deliver on and so forth. It's just a matter of fine-tuning the back end of the process.

Gary Wade Mobley - *Wells Fargo Securities, LLC, Research Division - Senior Analyst*

And relating to captive versus merchant, the impact?

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

We have always said that there is going to be captive suppliers that are developing their own silicon carbide capability. and we assume they're going to be successful at doing that. So that is part of our plan.

Operator

And our next question is from the line of Edward Snyder of Charter Equity.

Edward Francis Snyder - *Charter Equity Research - MD and Principal Analyst*

Gregg, so you said you're looking for revenue from Mohawk Valley by the end of this year. First off, is that production? Or are you talking about revenue for sample parts? Because if we go back to a year ago, when we were in this 2Q last year, and we went through a very detailed discussion of what Mohawk, it sounds like you're behind by about 6 months or modest and the things we've talked about with you guys was that you'd start internal fab qual probably mid last year, then customer qualifications in March or June, and then we'd start seeing initial production now and then volume production in second half or the beginning of '23.

And we've talked like last -- after last quarter to about -- it sounds like you guys were a little bit delayed then, but now it sounds like the lease may have been a little bit more acute.

So first of all, can you mark-to-market, put a flag in the ground now and tell us specifically what do you expect for Mohawk Valley in terms of not just revenue, but when do you start reach volume ramp to volume production. When do you expect to be done with customer qualifications.

I know you get some revenue for that. So maybe we can reset the expectations for the ramp of Mohawk Valley. And I understand it's complicated endeavor, so things shook out. And then if I could, maybe, Neill, you're saying this is 300 bps hit the gross margin due to RF, which is curious to me. Is this -- and I apologize if I missed it, but were you raising gross margins overall because of the improvements in wafer diameter in RTP? Or has something occurred to reduce the margins that you're already producing in the case it seems like I'm really curious deviation from what we had. And then believe it or not, I have a follow-up.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Yes. In terms of Mohawk Valley, we've got a bunch of -- a lot is going through the way we found all of the offsets that all the load lots that have gone through are performing very well. We're pretty excited about where we're at.

And we now have material in the fab that we intend to run through our qualification. And so that material is in the fab, it will come out, we'll do qualification, et cetera.

There's going to be a lot of kind of sort of simultaneous activity that happens with customers in terms of doing their call. We've had a lot of upreach from a number of different customers in terms of, as I mentioned, kind of them wanting to be first in line because there's only so much we can get out of term in the near term.

And so we're anticipating not only kind of preproduction sample kind of we're expecting to have initial production out of that fab by the end of this fiscal year, which is the June quarter. So we're expecting to get revenue out of that. In terms of the ramp, we would begin ramping in obviously beyond that, we'd see some increasing repay can just kind of cover the rent schedule.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. So from a ramp perspective, right now, we're going to be -- obviously, we've got parts coming out of there right now that we're going to use for reliability and qualification test in.

As we get to the back half of the year, we'll start seeing what the qualification schedule looks like, we'll hand those parts off pretty much in parallel with customers with such strong demand for those types of parts and then we'll start selling volume production in that time frame.

So it's going to be a little bit variable because it just depends on the timing and how the qualifications go -- kind of in line with what we said previously. So I think that's just going to be a matter of timing with customers and earning qualification wins and schedules and the to do everything as well.

But right now, the yields we're seeing the initial letter pretty shape.

Unidentified Analyst

On the RF margins.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. So on RF -- second question there. So on RF, if you go back in the last year and this year, we've been running that business and those products -- the RF product 100-millimeter subtracts. So our plan was during fiscal year 2023 with to make the transition for a large part of the business to 150-millimeter substrates and that obviously was going to help us with margins, not just more important form in '23.

So if you look at it today, the Durham fab talk about times of a higher cost footprint and we're running 100-millimeter wafers on the higher cost footprint. So the products in afar some of the margin challenge right now, and this is going to be a solution to help us kind of drive up the margin curve on RF.

But given the high level of demand that we're seeing, we're not going to be able to make that transition this year. It's not going to have a downtime in the past, given the amount of kind of heavy demand that we're seeing. So the way to think about it as we move into really well to hit our forecast for 23 as it relates to margin expansion.

But as you look at the '24, we did anticipate seeing benefit from 150-millimeter wafers in RF, we are going to see that. So that's what's driving us, say, a 300 basis point or so impact as you get kind of into '24.

And if you look at that cost today or the margin of those products today versus the rest of the business, it's obviously causing a drag as well. So that's really what the plan was to be kind of incrementally pushing this out, but really still have visibility right now to have the capacity to make the transition.

Edward Francis Snyder - *Charter Equity Research - MD and Principal Analyst*

Okay. And then my follow-up, if I could. Is the CapEx increased from $550 million to $1 billion. Is that entirely due to the new materials fab or as part of that, the acceleration of Mohawk.

And then we're running through, obviously, a recession, you've seen the reports guys, things are turning down pretty quick. Are you seeing any change in your customer behavior with regards to orders or forecasts, especially in industrial.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Yes, I can definitely take the second one. The only change we're seeing is up into the right as pulling in and increasing and ask for more earlier in terms of demand.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. And I think that the CapEx outlook has increased almost entirely related to the new materials facility that we announced. A lot of the expansion for Mohawk tool out the additional amount was already included when we took the CapEx to $550 million.

As I said previously, the $550 million did not include either the materials facility or a new wafer band the change here any materials facility.

Operator

And our next question is from the line of Matt Ramsay of Cowen.

Matthew D. Ramsay - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Gregg, I understand the benefits of going to taller bulls, both on 150 and 200 and what that can mean in the long term. I guess what I'm struggling with in the near term is the -- you would have thought that the rest of your supply chain would have been making the transition in anticipation of those taller bulls at the same time.

And that you wouldn't have made the decision to transition to the taller bulls without the back end being ready for it to impact the revenue. So I'm just trying to understand everything seems like it should have transitioned to anticipate those taller bulls sort of in concert with each other. And now it seems like parts of the infrastructure aren't quite ready to handle it, and it's causing delays. So if you could just kind of walk through the different pieces of handling the taller pools and which ones might have tripped up or not been ready for that transition as you anticipated?

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Thanks for the question, Matt. So we obviously aren't going to get into a lot of detail on our crystal growth and materials operation. A lot of that is intellectual property and trade secret et cetera.

What I would say is that the taller bulls caused some challenges in the back-end processing of these presales.

And the team jumped all over it at to the bottom of what the challenges were and what we need to fix and are already on the recovery plan to get back to where we need to be. So we're pretty satisfied with that kind of say it kind of -- we went through this open came out of it. Of course, it would have been great if we didn't have that But silicon carbide, it's a tough thing. It's been ramping these things is not going hard.

And I think the good news is that we've got a substantial amount of experienced people around when we have problems, we can call them all together and look at that problem and fix it relatively quickly. We're talking about a couple of quarter bump here, and we already see XLs on the upward tick.

So I think this is part of the way it is with silicon carbide I'd say it's a tricky technology to manage and certainly to scale is also not easy to do. But I think having a substantial amount of experienced people in our company that have been through all the different trials and tabulation of facility carbide help us handle this.

Matthew D. Ramsay - *Cowen and Company, LLC, Research Division - MD & Senior Research Analyst*

Thanks, Gregg, I appreciate the perspective there. I guess -- as my follow-up, Neill, I know there's a lot of folks, and maybe this is front running Monday a bit, but there's a lot of folks asking questions and you adjusted here a couple of times about raising funds versus the increased CapEx and your focus on minimizing dilution, but it's hard to really know what you're going to get from different governments, both Europe, U.S., CHIPS Act, North Carolina, New York, et cetera.

And it sounds like you're going to fund the remainder with equity potentially. What I'd be interested in is any line of sight visibility to customer co-funding or customer investments alongside of you guys? What the magnitude of that look like, how many engagements you might have. If we're trying to get to the remainder that might be funded with equity, that piece that might be done with customers that might also give insight to their commitments to your programs might be helpful if you have any color there.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

I think it's basically what I've talked about before. And the big kind of wild card here is that we don't know exactly what the government incentives are going to look like. But I can tell you, the majority of what we're looking at right now, I'd say the significant majority we're looking right now.

And all of what we're focused on, I would say, here in the shorter term is lower or not dilutive in terms of what we're focusing on in terms of what we want to do and what we want to go target. And that's really where our efforts are focused right now.

We've got the 4 buckets I talked about, the government incentives, the upfront payments from customers, project or private financing. And then finally, lastly, you go to the public markets. And I would think of it in that order in terms of how we're going to go think about going and approach this.

So I think we've got a lot of levers. The initial discussions that we've had have been very, very positive. But there is some variability in there related to several of the items because not all the regulations of government incentives for things have been an issue. So it's hard to give you the exact amount of what we're going to do. But I can tell you is we are focused on the lower or nondilutive elements of that plan right now and certainly as we think about around the funding in advance of some of these higher step-ups in CapEx to support this expansion for a pretty significant growth pickup that we've seen here, particularly in light of the design-in pipeline expansion that we've seen this quarter.

Operator

Our next question comes from the line of Abrish Srivastava of BMO Markets.

Ambrish Srivastava - *BMO Capital Markets Equity Research - MD & Senior Semiconductors Research Analyst*

Neill, I'm sure I'm not the only 1 based on questions that I'm getting to investor. I'm a little bit confused with the commentary that you provided on the last earnings call where you were very confident about the improvement in the execution on the back end and you specifically said that, hey, look, we expect this to continue. And we all appreciate the challenges in ramping the business drag and from where you were versus where you're going.

But it seems like there's a lot of volatility and what happened within a quarter that you went from calling out improvement continuing to the mix that you've had on the execution front? That was my first question.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. So I think from an execution standpoint, Ambrish, I appreciate your color on that. But obviously, we've got a big ramp in terms of what we're talking about. We just took our long-term revenue of 30% to 40%. So and the footprint that we're working on today is not the future footprint that we've been working off in the future.

So we have a lot of confidence. We made a lot of progress on our back-end execution last quarter. we still see the benefits from that. And I think what we've been caught on are 2 kind of growing pain type issues. One is related to longer hold like we said, I think it's going to be a nice tailwind for us going forward in terms of a great technology for us. And then secondly, from a VAT perspective, we've got bit by supply chain, we did see come only because we haven't really had any issues with this over the last several years as we've ramped the business.

So this is kind of a new item that's kind of popped up from a bad device perspective. But again, I see this as a 1- or 2-quarter type of issue. But obviously, it's a bit of a dip in a longer-term backdrop of pretty -- very significant demand and a lot of revenue growth.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

And I would just maybe just add something from a terminology standpoint in the semiconductor industry, up front end and back end typically refers to packaging, assembly tests, et cetera. What Neill referred to last quarter in the back-end improvement was that kind of stuff. Today, we're talking about taller bulls and a challenge on the back end of processing of that.

So it's a completely different thing than the back-end processing of a semiconductor chip. So just make sure you understood it and we tie in the same terminology for 2 different things.

Ambrish Srivastava - *BMO Capital Markets Equity Research - MD & Senior Semiconductors Research Analyst*

Got it. Got it. Then Gregg, a question for you. You're -- obviously, you're seeing a demand ramp, and you're very confident about you raised your guide for -- or what you expect for fiscal '26. But if you think about free cash flow, and you said it will be pushed out.

Well, how are you thinking about with all the puts and takes that you're so confident on the demand and on the ramp of Mohawk and the second fab. What should investors who care about free cash flow something like I definitely care about free cash flow. What should we be thinking about when do you start to generate free cash flow, Gregg.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Well, maybe let me just hit that 1 Ambrish a bit. And I think we are going to put a take the free cash flow numbers out, but that free cash flow is in advance of building, I think is a manufacturing footprint for a high-growth industry with throughout there, some of the most discerning customers in the world are going to build state-of-the-art capacity and capability that's going to underpin us for the long term.

So I think about having to invest in the business in advance of that. So I talked about a 2:1 CapEx ratio as you think about the investment in kind of facilities we've talked about. But as you get out beyond as you get into that long-range plan period, you look out beyond the cash flow generation capability of the footprint we're bringing online to match the demand that we're seeing in the business is going to be terrific. And we'll give you kind of an update on kind of how that all works on Monday.

Operator

And our final question today comes from David O'Connor of BNB Paribas.

David O'Connor - *BNP Paribas Exane, Research Division - Analyst of IT Hardware and Semiconductors*

Maybe in the same vein, Gregg, as the previous question, or questions. Does these kind of newer issues now that you're seeing on the -- in the Durham fab. Does that change your view of the Durham fab long term does this kind of any of the plans you may have for that fab longer term? Is there anything new there? That's my first question.

And just a clarification, for Neill on the 3 points of gross margin headwind on RF side. As far as I understand, it doesn't change the FY '24 target on the margin side, correct. It's still in line with what you indicated previously.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Yes, I'll take the first part, and then Neill can handle the second part. The team, led by (inaudible) have done a really good job of stabilizing and then improving the Durham wafer fast. What we have right now that we're dealing with is a spare part issue on older equipment inside of the fab itself.

And I think as we resolve that, the derm peer is never going to be more okay. These are completely different generations of fab and 1 highly automated brand new and the other 1 is not automated at all and 20 or 30 years old. So they're never going to be equivalent to see -- but we're -- that fab has made good improvement, still have more improvement to make, and we're just dealing with a little bit of the supply chain issue that Neill alluded to.

Neill P. Reynolds - *Wolfspeed, Inc. - Executive VP & CFO*

Yes. Then on the RF margin impact. And as you look out into '24, and I think like we said earlier, we're just seeing really a tremendous pull from the demand side to see that over the both the short term and the long term. And it's just not leaving us enough opportunity on downtime to go and bring that down and make that transition.

So it will have an impact on the 24 margin trajectory. The 300 basis points, I think, is kind of the number that you want to think about there in terms of you think about '24. But again, it's really a choice of serving customers or taking down time to kind of make a transition like that and really make a choice to serve our customers. in that period. Now if you go out and look out beyond '24, I think that the blueprint we have for cost and capacity over that time frame, even with the very significant growth plans that we have with very, very solid.

Gregg A. Lowe - *Wolfspeed, Inc. - President, CEO & Director*

Well, thank you very much, everybody, for participating in the call, and we look forward to seeing you next Monday at October 31 in New York. Thank you.

Operator

Thank you to everyone who has joined the call today. This concludes.