NASDAQ:IPWR Q2 2025 Earnings Call Transcript

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Kelly | Conference Operator:

Good morning, ladies and gentlemen, and welcome to the Ideal Power second quarter 2025 results conference call. At this time, all participants are in a listen-only mode. At the end of management's remarks, there will be a question and answer session. Investors can submit their questions anytime within the meeting webcast by typing them into the Q&A button on the left side of your viewing screen. Analysts who publish research may ask questions on the phone line. For analysts to ask those questions on the phone line, please press star one to enter the queue. As a reminder, this event is being recorded. I would now like to turn the conference over to Jeff Christensen. Please go ahead.

Jeff Christensen | Director of Investor Relations:

Thank you, Kelly. And good morning, everyone. Thank you for joining the Ideal Power's second quarter 2025 results conference call. With me on the call are Dan Berdar, President and Chief Executive Officer, and Tim Burry, Chief Financial Officer. Ideal Power's second quarter 2025 financial results press release is available on the company's website at idealpower.com. Before we begin, I'd like to remind everyone that statements made on the call and webcast, including those regarding future financial results and company prospects, are forward-looking and may be subject to a number of risks and uncertainties that could cause actual results that differ materially from those described in the call. Please refer to the company's FCC filings for a list of associated risk. We would also refer you to the company's website for more supporting company information. Now I'd like to turn the call over to Ideal Power's President and CEO, Dan Berdard. Dan? Thank you, Jeff.

Dan Berdar | President and Chief Executive Officer:

I appreciate everyone joining us today. I'm eager to share an update on our progress since the start of the second quarter. I'll begin with the key highlights since the beginning of the second quarter and discuss the most significant developments with additional context to highlight their significance. Afterwards, I'll turn things over to Tim to discuss our financial results. We look forward to your questions after our prepared remarks. First, we shipped updated solid-state circuit breaker prototypes to our first DesignWin customer. These updated prototypes incorporate additional capabilities into the device driver that were requested by the customer to further differentiate their product offering. The customer is completing their prototype testing and will soon begin gathering feedback on this new product from their targeted end customers ahead of the product launch of their first VTRAN-enabled solid-state circuit breaker product planned for later this year. Second, we entered into a collaboration with a fourth global Tier 1 automotive supplier. We ship them packaged devices, a reference design, and driver to enable them to evaluate B-TRAN, and our understanding is that they plan to launch a formal solid-state EV contactor program within the next few months. Third, one of our distributors introduced our products to a fourth global automaker and the automaker's preferred Tier 1 supplier. They ordered numerous packaged B-TRAN devices, Simcoe power modules, solid-state circuit breaker reference design boards, and drivers. customer will evaluate BTRAN as part of their innovative solid-state EV contactor design implementation. The same distributor also introduced our products to a fifth automotive OEM for a potential EV contactor program. We're now collaborating with a total of five automakers including four of the top ten global automakers. Fourth, Stellantis formally informed us that they are issuing a purchase order to us for custom development and package devices targeting multiple EV applications and broadening our collaboration with one of the world's largest automakers prior to the launch of the EV contactor program. Fifth, we added a partnership with Kaimei Electronic Corp. to distribute Ideal

Powers products to their existing and prospective customers throughout Asia, alongside their own product portfolio. Asia is the world's largest market for power electronics, and Asian companies typically adopt new technologies faster than their European and U.S. counterparts. They started introducing B-Trend to their customer base. Sixth, we shipped solid-state circuit breaker reference designs to several large companies currently evaluating our technology for solid-state circuit breakers or EV contactor applications. This includes two previously announced Forbes Global 500 power management market leaders, as well as our fourth and fifth global Tier 1 automotive suppliers that we added in late June. And seventh, we successfully completed the third-party automotive pre-qualification and reliability testing of V-TRAN devices with zero failures. We expect to complete full third-party automotive qualification and reliability testing later this year. Let's briefly turn to what we've repeatedly been hearing and seeing from current and prospective customers. There's a growing interest in our V-TRAN technology, both for industrial and automotive applications, particularly for circuit protection applications such as solid-state circuit breakers, transfer switches, and EV contactors, where ultra-low conduction losses are enabling for the applications. For these applications, we're typically competing against silicon carbide devices, and the consistent message we are hearing from prospective customers is that the cost and conduction losses of solid state solutions using silicon carbide are too high. A recent example of this is our first design wind customer. This customer is one of the largest circuit protection equipment manufacturers in Asia, targeting data centers, industrial and utility markets, and renewable energy applications. sent us their 20-amp unit directional silicon carbide breaker prototypes that did not meet their cost and performance requirements. We reworked them and sent them back a 63-amp bidirectional B-Tran breaker with a 60% reduction in losses compared to the silicon carbide prototypes. Obviously, this is a significant performance improvement with much higher power density while achieving lower total losses using silicon devices that are at a lower price point than silicon carbide devices. Since then, we provided the customer with updated prototype breakers incorporating additional capability they requested be put into the device drivers to accommodate some innovative ideas on the capabilities they want to add to their breaker product. The customer is testing the updated prototypes now, and they'll be soliciting feedback from their customers on these prototypes in the near term with a particular focus on data center customers. Following this feedback cycle, they plan to move forward with a product launch of their first BTRAN-enabled solid-state circuit breaker this year, and we're excited to collaborate with this customer in launching additional BTRAN-enabled breakers across various power ratings in the future. As we've previously mentioned, and based on the first design wind customer's projections, the initial product from this customer could translate to several hundred thousand dollars of revenue for ideal power in its first year of sales, with the opportunity to exceed millions of dollars in revenue for us in the second year of sales. Importantly, this is just the beginning. This initial product is anticipated to be the first of several products from this customer that will incorporate V-TRAN into solid-state circuit breakers. This customer provides a variety of circuit breaker products across various power ratings, and it's expected that they could add a full family of solid-state circuit breakers at ratings similar to their current family of electromechanical breakers. Importantly, our development agreement with this customer does not constrain us in any way from working with other companies interested in our technology for solid-state circuit breaker solutions. In fact, the work that we've done with this customer can be leveraged to benefit current and future customers aiming to bring solid-state circuit breaker products to market. Due to the increased customer engagement from Asia and the magnitude of the opportunity for the region for industrial applications beyond our first design with customer, we're in the process of adding a sales director and field applications engineer for the region. We're seeing increased interest in VTRAN for circuit breakers and static transfer switches for data centers. In both circuit breakers and transfer switches, a smaller solid state solution would replace bulky, slower acting electromechanical solutions. Solid-state circuit breakers and data centers protect against faults and offer the same advantages as solid-state circuit breakers in utility and other industrial applications. Transfer switches for data centers are used to minimize or eliminate server downtime by quickly switching the power source to backup power when needed. Transfer switches are critical as data centers strive for better than five nines or better than 99.999% uptime. It's also important to note that waste heat is a critical issue for data centers, and that BTRAN-enabled switchgear, like circuit breakers and transfer switches, have ultra-low conduction losses and generate significantly less waste heat relative to competing solid-state solutions. We're excited that our BTRAN is an enabler for customers seeking solutions for solid-state switchgear in data centers. Moving on to another exciting market for BTRAN, electric

and hybrid electric vehicles, including EV contactors. For those of you unfamiliar with EV contactors, a contactor can be thought of similarly to a solid-state circuit breaker for an electric vehicle. It isolates the battery from electrical subsystems during both fault conditions and planned maintenance for improved safety. Traditional electromechanical contactors aren't fast enough and do not offer programmability or diagnostic capabilities. Auto OEMs need a solution that is very fast-acting to protect the batteries and the systems connected to the battery to prevent a runaway event, injury, or other damage. Stellantis and multiple other global automakers, as well as numerous Tier 1 automotive suppliers, are already looking at B-TRAN for solid-state EV contactor applications. They, along with others in the industry, appear to have uniformly decided that an electromechanical contactor is not the right solution for electric vehicles due to the slow speed of electromechanical devices and the need for enhanced safety, programmability, and diagnostic capabilities. The application of BDRAN and EVs is exemplified by our expected purchase order from Stellantis, encompassing custom development and package devices aimed at multiple EV applications. The order has been approved by Stellantis internally, and we expect to receive their purchase order in the near term. The primary deliverables under this order are a non-traditional double-sided custom semiconductor package design, numerous B-Tran dies in this custom package, and related drive circuitry. The custom package is required by the unique thermal management design Stellantis intends to adopt for its next-generation electric vehicle platforms. The combination of V-TRAN and Stellantis' thermal management design allows for commonality of parts in multiple locations within its EV, including the drivetrain, contactors, and other high-power EV applications, and across its EV platforms. This new order is intended to form the basis for a common power semiconductor and packaging design for both the drivetrain and contactor programs. The order will represent significant and continued progress Stellantis, as they implement their EV strategy. As this order will enable multiple uses of V-TRAN in Stellantis' EV platforms, we're excited about our broadening collaboration and the customer validation of the benefits V-TRAN can provide to high-power EV applications. We remain actively engaged with Stellantis, meeting regularly with them and their program partners on both the planned EV contactor and current drivetrain inverter programs, and collaborating with them on automotive qualification and related requirements. Turning to other automotive customers, we added our fourth and fifth global Tier 1 automotive suppliers to our roster of engagements. For the fourth global Tier 1 automotive supplier, we're engaged with their engineering teams from both the U.S. and Asia. They have B-TRAN devices in their lab and will be evaluating B-TRAN in the near term. Our understanding is that they expect to launch a formal solid-state EV contactor program within the next few months. For the fifth global Tier 1 supplier, we've begun shipping the numerous package B-Trans devices, Simcoe power modules, solid-state circuit breaker reference design boards, and drivers that they'll evaluate for an innovative solid-state EV contactor design. Both these Tier 1 suppliers serve several top 10 global automotive OEMs. Moving on to the macroeconomic level, investors have asked about tariffs and evolving trade policies. While the tariff situation is very fluid, we continue to expect minimal impact on our operations from tariffs in place today. Importantly, power semiconductors are exempt from many tariff locations currently in effect, or in some cases are capped at a low tariff rate. This limits the potential impact on us. Although the situation remains dynamic, as evidenced by recent tariff adjustments with China, we're well positioned to mitigate the impact of future changes in tariffs and trade policies and other supply chain risks. Our asset-light outsourced business model, leveraging the large investment already made in silicon wafer processing and packaging, enables flexibility. Additionally, our dual-sourcing approach in different geographic regions strengthens our supply chain resilience and optionality with wafer fabrication and packaging in different parts of the world. Importantly, our supply chain strategy is entirely independent of China, further insulating us from regional geopolitical and trade uncertainties and any potential trade conflicts between the U.S. and China. Looking briefly at innovation, we intend to increase the power rating of our product later this year, and updated data sheets will be issued accordingly. We've been conservative in how we've rated our technology, which customers have told us they appreciate as we're introducing a new technology to their markets and applications. As we get more and more testing hours and go through reliability testing, including third-party automotive pre-qualification testing, we're finding that we have more than ample margin in our design to increase the power rating of our products. Higher product ratings will allow customers to design their products to perform at higher ratings with the same number of devices, or to hold their product ratings constant but potentially utilize fewer B-train devices in their application, either of which make their product even more

competitive in the marketplace. The work to complete the testing and release new data sheets for the uprated products is in progress and on track. As I mentioned earlier, we successfully completed the third-party automotive prequalification and reliability testing of BTRAN discrete dye last month, achieving zero dye failures. Test results indicate that double-sided, cooled packaging utilized for BTRAN devices is much more robust than semiconductor packages utilizing wire bonding because wire bonding is a common point of failure in semiconductor packaging. For example, to meet automotive qualification standards, package devices must withstand 15,000 power cycles without failure. Our devices recently passed 50,000 power cycles without any failures. In addition, the pre-qualification allowed us to identify and implement packaging improvements to optimize the design for easier assembly for high volume manufacturing and to reduce cost. The production of multiple wafer runs required for high-volume automotive qualification testing is nearing completion. The gating item for completing the device packaging is the tooling for the encapsulation of the package devices, which has been ordered, and our packaging supplier is expecting its delivery in the next few weeks. We previously mentioned orders this year are not dependent on the successful completion of automotive qualifications. However, achieving third-party automotive qualification would provide additional confidence to industrial customers regarding V-TRAN's long-term reliability. It also provides evidence of reliability under conditions, including extremes of humidity and temperature, that surpass those needed for industrial applications. And since engineers tend to be conservative when adopting new technologies, automotive qualification would potentially speed up the rollout of V-TRAN-based products by early adopters in our initial target industrial markets. Our BTRAN patent estate continues to grow. Currently, we have 96 issued BTRAN patents, with 47 of those issued outside of the United States. Our patent coverage spans North America, China, Taiwan, Japan, South Korea, India, and Europe, all representing our high-priority patent coverage geographies. As a result of our continued innovation, our list of pending BTRAN patents is now at 74. To safeguard our intellectual property further, we treat the proven double-sided wafer process flow we developed to make our devices as a trade secret and do not disclose the identity of and work under strict confidentiality with our wafer fabrication partners. So even if a competitor studied our patents, they wouldn't have the know-how to fabricate the device. In summary, we're excited about the expected purchase order from Stellantis, which targets multiple EV applications and will precede the new EV contactor program with Stellantis. Our first design wind customer is completing their solid-state circuit breaker prototype testing in advance of their planned BTRAN-enabled product launch later this year. We anticipate that following their initial product rollout, this OEM will broaden its product lineup to include a variety of BTRAN-enabled solid-state circuit breakers across multiple power ratings, which could lead to significant revenue growth for us. We view solid-state switchgear for data centers and other industrial facilities and grid infrastructure, including solid-state circuit breakers from this first design wind customer as our path to significant revenue growth and profitability. Additionally, we're now collaborating with our fourth and fifth global Tier 1 automotive suppliers and additional top 10 global automakers as the automotive industry is seeking low-loss solid-state solutions for EV contactors. Looking forward, we're confident we'll deliver against all our milestones for 2025. This year, in addition to the current program with Stellantis, we're expecting a second development program with them, additional design wins and our custom development agreements for circuit protection applications with global companies, the start of our revenue ramp, an increase in the power rating of our products, and the completion of third-party automotive qualification. Now, I'd like to hand the call over to Tim Burns to review our financials.

Tim Burry | Chief Financial Officer:

Tim? Thank you, Dan, and good morning, everyone. Our second quarter 2025 cash burn from operating investing activities was $2.5 million, up from $2.2 million in the second quarter of 2024, and up from $2.1 million in the first quarter of 2024. Our Q2 cash burn was at the lower end of our guidance of $2.5 to $2.7 million. Our cash burn from operating and investing activities for the first half of 2025 was $4.6 million, up from $4.2 million in the first half of 2024. We continue to manage expenses prudently and aggressively. We expect third quarter 2025 cash burn to increase to approximately $2.7 to $2.9 million, with a full year 2025 cash burn just over $10 million with the increase primarily due to the hiring of additional sales and engineering personnel. This compares to a 2024 cash burn of $9.2 million, excluding the benefit of warrant

proceeds. Cash to cash equivalents totaled $11.1 million at June 30th, 2025. We have no debt in a clean capital structure. We recorded modest revenue for the second quarter of 2025 as customers continue to evaluate our technology. While initial orders from the large companies evaluating our products for potential inclusion in their OEM products will be small, we expect order sizes to increase as customers start to prototype their OEM products and progress through their design cycles and roll out BTRAN-based products. Looking at the balance of 2025, we expect to see the start of our sales ramp with revenue from product development activities, the launch of the first B-Train-enabled breaker by our first DesignWin customer, and other product sales. Operating expenses were $3.1 million in the second quarter of 2025, compared to $2.9 million in the second quarter of 2024, with the increase due to higher wafer fabrication and engineering personnel costs. We expect both research and development and sales and marketing spending to increase modestly in the coming quarters due to recent and future hiring and costs associated with our development and commercialization efforts. We also continue to expect some quarter-to-quarter variability in operating expenses, particularly our research and development spending, due to the timing of semiconductor fabrication runs, product development, other research and development activities, and hiring. The timing of equity grants and related stock-based compensation expense recognition will also cause variability in our quarterly operating expenses. Net loss in the second quarter of 2025 was $3 million compared to $2.7 million in the second quarter of 2024. Considering our asset-wide business model, no debt and modest planned cash burn, we have sufficient liquidity on our balance sheet to fund operations through at least mid-2026. We'll potentially see several sources of funds over the next year, such as product sales, development agreements, and other commercial agreements with upfront payments. Additionally, we're exploring strategic relationships with our well-capitalized and large global partners, with these opportunities strengthening as we further advance these customer relationships. As a publicly traded company, we also have access to the capital markets if necessary, providing us with additional financial flexibility. At the end of June, we had 8,498,014 shares outstanding, 945,318 options and stock units outstanding, 653,827 pre-funded warrants outstanding, and 342,240 warrants outstanding. At June 30th, 2025, our fully alluded share count was 10 million, 439,399 shares. The 342,240 warrants outstanding at June 30, 2025, expired unexercised earlier this month, so there are no warrants remaining in our fully diluted share count. At this time, I'd like to open up the call for questions. Operator?

Kelly | Conference Operator:

Certainly. At this time, we are conducting the question and answer session. Investors can submit their questions within the meeting webcast by typing them into the QA button on the left side of your viewing screen. Analysts who publish research may ask questions on the phone line. For analysts to ask questions on the phone line, please press star 1 to enter the queue. Please hold just a moment while we poll for questions. You have a question coming from Casey Ryan with West Park Capital. Please pose your question. Your line is live.

Casey Ryan | Analyst, West Park Capital:

Thank you. Uh, good morning gentlemen. Uh, this is an exciting update. Um, Hey, I did, it did, it did spur some questions, um, particularly around Stellantis. You know, I think, how do we think about the opportunity with them? I think you're mentioning platform, which is helpful, but, uh, to sort of boil it down for us in the public. Um, I think Stellantis has 16 brands, but you mentioned it's maybe for an EV vehicle, but, um, What's the right way to think about your exposure? Like, could you be exposed to all 16 brands? Are you exposed to all EVs within the 16 brands? Or is there some other way to sort of simplify what the opportunity there is?

Dan Berdar | President and Chief Executive Officer:

Yeah, I mean, our understanding from discussions with them is they want commonality across their brands and their EV platform. So you would see us in multiple brands that people would recognize. There will be some brands like Maserati where they will probably go with higher cost solutions like silicon carbide where cost is not an issue and people aren't worried so much about range because it's a different application. But they really want to have a common EV platform Since they've got to continue to support their combustion vehicles, they don't want to have multiple iterations for every brand of what their new EV products are going to look like. So it gives us a pretty broad opportunity across a broad range of midsize vehicles for new brands.

Casey Ryan | Analyst, West Park Capital:

Okay, so terrific. So it's certainly fair for us to think it may be multiple brands, maybe not all 16, but certainly more than one, and then multiple vehicles possibly.

Dan Berdar | President and Chief Executive Officer:

They clearly plan on it being multiple grants. They've made that very clear to us. And part of this work that they've told us that we're getting a purchase order for is to also start to drive some commonality even within the EV. Originally, the drivetrain and EV contactor programs were very separate. They were going separate paths. And this work is to actually converge on the semiconductor and packaging design and prior to getting the contactor program awarded because they really want to have that same solution in both of those parts of the vehicle. So it gives us commonality in what we are going to provide for multiple applications within the EV.

Casey Ryan | Analyst, West Park Capital:

That's really terrific. I think in the past we've talked about the contactors potentially being in the hundreds of dollars of content per vehicle. if you were in the total vehicle across all these opportunities, I mean, would that number sort of move higher to sort of closer to four figures, or would it still be in the hundreds but possibly higher than the contactors alone, I guess?

Tim Burry | Chief Financial Officer:

Yeah, so we estimate the total power semiconductor content in the EV about $1,100. The biggest part of that actually is the drivetrain inverter itself. EV contactor is maybe $300 of that content. So it's most of the content. The other content you're looking at is things like the onboard charger, which may use lower power devices or MOSFETs. But for us, it's really the drivetrain inverter. I think I heard OnSemi at one point say that they had about $750 of content in a drivetrain inverter for power semiconductors. So I've heard that number out there. But it's several hundred dollars, certainly, for the inverter.

Casey Ryan | Analyst, West Park Capital:

Okay, terrific, terrific. One thing that we've talked about, you know, and like I think moving to commercial revenue is a very exciting thing for the second half of 25, but I'm curious, in terms of your design win opportunities and how they come to you, how would you classify those in terms of volume of opportunities? Just as we're curious about all the applications of your technology, would you say that known design win, you know, for you sort of numbering in like the like tens because we're sort of talking about automotive people primarily or are they potentially in the hundreds or thousands in terms of where you guys could be consumed

or sort of considered as a upgrade solution?

Tim Burry | Chief Financial Officer:

Can you clarify that a little bit, Casey?

Casey Ryan | Analyst, West Park Capital:

Well, no. I'm just saying how many design opportunities are you guys seeing out there in the marketplace separate from what you've talked about already to sort of what's on your sales pipeline board essentially. Like how big is that funnel is what I'm sort of curious about.

Dan Berdar | President and Chief Executive Officer:

Yeah. I mean, it continues to grow. I mean, if you look at the automotive side, it's, it's more discreet because there are just less players there. So there's five global audit auto OEMs, four of which are in the top 10, uh, and five tier one suppliers. Um, Now, if we look at the industrial side, there's many, many more because there are a lot of companies that we are working with that are interested in solid-state circuit breakers. They range in size from very large companies that people would recognize of, and I'm not saying these are them by name, but they would be companies like a Siemens or an Eaton or a Schneider to some mid-sized companies that are also looking to try and find a way to take market share from the big folks. you know, our earlier design wins are clearly going to be on the industrial side. We'll get funded programs through the tier ones and the, uh, automotive companies since their design cycles are longer. But, you know, a lot of our effort right now is really focusing on the, uh, the industrial applications where we'll have our first wins.

Casey Ryan | Analyst, West Park Capital:

Yeah. Okay. All right. Terrific. That's helpful. Um, and then you mentioned silicon carbide and the cost issue. Um, I'm just curious technically in how you guys feel about this. Would customers prefer silicon carbide cost not being an issue, or is that not always the case? And not that silicon carbide will ever get to cost parity with your solution, but I'm just curious how customers think about that.

Dan Berdar | President and Chief Executive Officer:

Well, I'll use our first design when customer is the example. The breaker that they sent us that was silicon carbide, cost was a problem, but the biggest issue was it got too hot. It wouldn't meet the standards even at 20 amp unidirectional applications. So we were actually to give them breakers back that had three times the power density. They were 63 amp breakers that we sent them back, and they were bidirectional, which is what they need, particularly on DC applications. the temperature rise in them meets the codes and standards. So heat is the big problem because the conduction losses are high in silicon carbide.

Casey Ryan | Analyst, West Park Capital:

Okay, great. That's illuminating. And then kind of the last question, you guys also mentioned in the script, you know, data center opportunities. Can your products be integrated into an environment, say a data center environment? as a hybrid solution, like can some of your products be consumed, but also be in a mixed environment with older technology as well?

Dan Berdar | President and Chief Executive Officer:

Yeah, what we're seeing is they're prioritizing where there's really a need for speed that impacts the quality of the power on the data center, so speed of transfer switches, speed of breakers. We don't expect that a given data center is going to swap out every breaker all at once. They'll do that in kind of a staged fashion. So you'll just have one part of the data center that will perform at a different level and have different diagnostic capabilities than what it may have been built with five, ten years ago.

Casey Ryan | Analyst, West Park Capital:

Okay, good. So there's ample opportunity in existing markets and not just in greenfield built, essentially.

Dan Berdar | President and Chief Executive Officer:

Correct.

Casey Ryan | Analyst, West Park Capital:

That's what I was curious about.

Dan Berdar | President and Chief Executive Officer:

I mean, for data centers, the big issue for them is electricity is the biggest operating cost. So while they want to have faster-acting solutions to enable them to maximize their uptime, waste heat that comes from some of the solutions that are out there that are silicon carbide-based doesn't help them because it raises their electricity usage, which, you know, works against their business model. So I think there's a great opportunity for us as people look to modernize the data centers to actually replace things that are existing as well as being the new builds.

Casey Ryan | Analyst, West Park Capital:

Yeah. Okay. Terrific. Well, that's another great market for your technology. I think that's it for me, but look, this is a very exciting update. I think we're getting to sort of a important demarcation line as you get closer to commercial revenue. So thank you for the update. Thank you for taking my questions.

Dan Berdar | President and Chief Executive Officer:

Thanks, Casey.

Kelly | Conference Operator:

I would now like to turn the floor over to Jeff Christensen to take any questions from the webcast. Jeff?

Jeff Christensen | Director of Investor Relations:

Thank you, Kelly. Our first question that was submitted by investors is a lot of semiconductor specialists agree that the technology is excellent and it's a game changer for niche solid-state circuit breakers, EV, hybrid applications, and more. What are the challenges to closing sales? Are there any technical challenges, and are there one or two issues the company needs to overcome, or are issues more individual for each company?

Dan Berdar | President and Chief Executive Officer:

There haven't really been any technical challenges. The biggest issue really is just the education process. You know, you think about things like Southern Carbide MOSFETs, they've been around for 25 years. So engineers learned about them in school. They've worked with them previously. Our technology is new. So you've got to get the engineering community Through that education process, you've got to get devices in their hands, get them in the lab, working with them, get comfortable with them. It's also part of why we do things like present papers at the Applied Power Electronics Conference every year. We've got an article coming out in the IEEE magazine this year to really help just continue that education to the technical community to get them through that learning process so they're comfortable adopting a new technology.

Jeff Christensen | Director of Investor Relations:

Thank you. Our next submitted question is, what is Ideal Power doing to drive sales ramp and increase product awareness?

Tim Burry | Chief Financial Officer:

Yeah, so for us, we're taking really several paths to market. We have our own internal sales team. We have distributor relationships. We have sales reps. We have a new partnership with TimeA where they'll actually be selling our products alongside their own. We're also continuing to increase awareness in the technical community. Dan had mentioned there's going to be an article about BTRAN and solid-state circuit breaker applications in the next issue of IEEE Magazine. We also actively attend trade shows. We've been to APEC and PCIM earlier this year. We'll be at the upcoming ECCE conference in Philadelphia. And we also recently launched a global solid-state circuit breaker campaign that incorporates the test results that Dan had mentioned related to our first design win that show that B-Tran significantly outperforms silicon carbide MOSFETs in breakers. So this advantage really carries over to other solid-state switchgear applications like EV contactors, another application we're targeting. So we're really taking a multi-pronged approach in terms of getting B-Tran into the trade press and also just really increase awareness.

Jeff Christensen | Director of Investor Relations:

Thank you. The next submitted question is, I'm new to Ideal Power. In simple terms, what is an IGBT, and what are the advantages of Ideal Power's B-TRAN compared to an IGBT?

Dan Berdar | President and Chief Executive Officer:

Okay. An IGBT, it's a unidirectional semiconductor device that functions as an electronic switch that controls the flow of energy for various applications. IGBTs are used for high voltage, high current applications like power converters for electric vehicles or EV charging or energy storage and renewable energy, industrial motor drives, and other industrial and utility applications. IGBTs are a big market. It's about a $10 billion

market today with a lot of growth expected over the coming decades just due to the increasing electrification of society. The primary advantage of V-TRAN over an IGBT is that V-TRAN offers improved performance and bidirectionality. And bidirectionality is increasingly important as we use batteries more and more because you need to control the flow of energy during charging and discharging of the battery. So you see solar coupled with energy storage. You see electric vehicles. You see EV charging with backup batteries for buffer capability. So in terms of performance, VTRAN has significantly lower conduction losses, and it's more efficient. So it produces less heat than IGBTs. That allows OEM products to be smaller and more efficient because the size of a lot of power electronics, like a power converter, are driven by the need to dissipate waste heat. So it really comes down to being able to provide a high-level performance. And the big issue, really, for a lot of these bidirectional applications is anytime you're using an IGBT, you need four devices to make a bidirectional switch. You need pairs of IGBTs and diodes to control the flow in either direction. So there's more parts that will fail. There's more cost. And there's significantly higher loss, about five times the higher conduction loss for bidirectional switch using conventional things like IGBTs. So you end up with a more efficient solution using BTRAN and one that can actually be lower cost because it's a lower cost bidirectional switch and lower lifetime cost for the OEMs.

Jeff Christensen | Director of Investor Relations:

Thank you. The next question is, when will IGO Power get to cash flow break even?

Tim Burry | Chief Financial Officer:

Yeah, so for us, it really depends on product and customer mix. Obviously, the pace of adoption is going to influence that. But what it really comes down to is it only takes a few key design wins for us to get the cash flow break even. We're engaged with large global companies who are evaluating our technology for their applications. And landing even a single design win can generate millions or even in excess of $10 million in revenue annually for ideal power. So it just comes down to Again, which design wins happen at what time and just really the pace of adoption. But it will not take us much to get there. We can do it with just solid state circuit breakers. Obviously, we'll have contributions from development programs around electric vehicles, but it's really the industrial markets will get us there.

Jeff Christensen | Director of Investor Relations:

Thank you. So I'll ask the next question. It's about the auto qualification. So I'm going to combine some questions that were asked by a couple different people, but what can you – repeat and clarify, can you repeat and clarify results on automotive testing? What does pre-qualification mean? And how are you able to make modifications during the testing?

Dan Berdar | President and Chief Executive Officer:

Oh, sure. Good question. When you go through automotive qualification, you have to submit many package devices from multiple wafer runs. So it can't just be you've cherry-picked the best devices from a particular run. You have to show that you've got commonality of performance across several wafer runs and many devices from each of those runs. So what is a good practice is to actually take devices and take them through those test cycles before you actually do all the runs for official qualification. You can do it with a smaller number of devices. It helps you find out are there any issues with your packaging design that can't withstand maybe humidity or temperature. because auto-qualification testing is fairly expensive, and it takes many, many, many, many devices, hundreds, well, a couple thousand devices to get through it all. So it's really pre-qualification is to make sure are there any design issues you need to be aware of for the devices, or are there any areas with the packaging? And the one thing that we saw that we want to improve was are the

devices that we've had packaged so far have not had tooling for encapsulation. And we think that would be a thing that would make the package even more robust. So we did some things that actually also will help us with a design that will be better suited for on the packaging side for high volume production in terms of making it easier to assemble. So pre-qualification just gives you that early look into any issues you might have so that before you run all the wafers and do all the packaging for the hundreds of devices that go into testing, you've already addressed those issues and you know you can pass with a good degree of confidence.

Jeff Christensen | Director of Investor Relations:

Thank you. And another question regarding the qualification is, does the Does the process as we move to finalize that qualification, including the pre-qualification, does that – any comment you can make about the inflow from industrial – other industrial automotive customers that were previously hesitant to jump into the new technology?

Tim Burry | Chief Financial Officer:

Yeah, so I think overall, the more test data that you have and that you can share with customers, the easier it is to get them to adopt the technology. Obviously, we've generated a lot of test data through our works with Stellantis to date. It's similar here with our first DesignWin customer. We have some really great data now we can share for solid-state circuit breaker applications. We had no die failures through pre-qualification. We can share that data with industrial customers. So we think all of these things will help adoption. And then when you get to actual auto-qualification, I mean, that should certainly help because the automotive standards are much more stringent than industrial standards. It has extremes of humidity and temperature you just don't have in the industrial test. So all of those things should act to really help with adoption. And just one comment on that.

Dan Berdar | President and Chief Executive Officer:

Part of why, you know, we did this is to generate some of this data because when you do have a new technology, you know, there is a – I won't say reluctance, but customers are conservative – And people that understand IGBTs, for example, understand that the most common reason that IGBTs fail is a fail of the wire bonding that's used to bond the dye to the package. Since we don't use wire bonding, we have a different approach in terms of how our package comes together. We wanted to generate the data that showed that not only do we pass the 15,000 power cycles needed to meet auto-qualification, We kept running them. And to be able to go to those customers and say, not only did we pass that criteria, we've passed 50,000 power cycles without a failure. It really helps with the technical customers that you're working with to be comfortable that the device is actually ready for adoption for their application.

Jeff Christensen | Director of Investor Relations:

Thank you. There are many submitted questions from investors, and thanks for that. Please click on Ask a Question in this conference call online webcast portal to submit your question. The next question that was submitted is, you've definitely shown a lot of commercial progress. The stock price seems to be lagging the progress you've made. What do you think the street is underappreciating or overlooking at this point?

Tim Burry | Chief Financial Officer:

Yeah, I would say given the macro trends that are out there, things like renewable energy, EV adoption, proliferation of data centers, they're really driving the increasing use of power semiconductors. So we think we're commercializing our technology at a great time. We certainly have near-term opportunities to secure agreements with multiple large global companies beyond just our first design wing customer in Stellantis. We bring a solution in silicon. It provides significant performance advantages over conventional technologies. It's enabling for applications like solid-state circuit breakers and EV contactors. So while we're not going to sit here and speculate on why the street is not really valuing the enormous opportunity ahead of us, we would expect that to change as we continue to announce some of these design wins, some more custom development agreements. We start showing revenue here in the coming quarter. So for us, we can't focus on what our specific stock price is on a given day or what the Mark is what's in favor or not with the market. It's really focusing on executing and getting those commercial announcements out, and we expect then it'll take care of itself.

Jeff Christensen | Director of Investor Relations:

Thank you. The next submitted question is, which market do you see that will contribute the most to the company's initial revenue ramp?

Dan Berdar | President and Chief Executive Officer:

It's clearly going to be the solid-state circuit breaker market. We've got so many companies that are engaged with us now. We've got the first design win with a customer. We know that they've got other plans for other products And fortunately, the design cycles on industrial products are significantly shorter than what you see for getting through the long design cycles on the automotive side. So, you know, our focus is really going to remain driving the opportunities in the solid-state circuit breaker market to closure. Once the first company moves forward, you're no longer the first person to do something. So I think it kind of takes some of the pressure off some of the other customer teams to say, okay, people have already been through this evaluation. I'm not missing anything, and I'm comfortable with making sure I've got a competing product.

Jeff Christensen | Director of Investor Relations:

Thank you. Do you think the next submitted question is, do you think our most successful markets could be outside the United States? especially given the recent shift in the administration away from EVs?

Dan Berdar | President and Chief Executive Officer:

I think that's certainly shaping up to be the case here. Asia in particular tends to adopt new technologies quicker. The first design win that we've got is an Asian customer. We're seeing multiple Asian customers that we're working with even in the Tier 1s that we're working with now. EVs are, I mean, it's a global opportunity, but I think we will see much of what we are doing on the circuit breaker side and on the EV side start to materialize in opportunities outside of the U.S. first. And then in general, you know, U.S. companies seem to move more slowly than what we see for a lot of the Asian companies we're working with, which is fine. It'll just, they'll come in behind it with their own version of the products. But it's a good, insightful question there. I think we will see growth first outside of the U.S.

Jeff Christensen | Director of Investor Relations:

Okay, thank you. What is the cost of, the next submitted question is, what are the cost of four devices in a traditional IGBT that B-TRAN replaces versus the cost of the B-TRAN?

Tim Burry | Chief Financial Officer:

Yeah, so at scale of B-TRAN, a single B-TRAN should be at about a 10 or 20% premium to a single IGBT. So if you're looking at a bidirectional application, I mean, it's significant cost savings because you need to include two IGBTs and also have two blocking diodes in that solution. So B-Train is actually a much less expensive alternative in terms of first cost. And also, if you look at lifetime costs, it's also obviously going to help because you're going to have smaller OEM products. You can have less surface area to dissipate heat. less complex thermal management systems, overall smaller OEM product designs just because there's lower losses. So it's really both not just a first cost advantage when you're talking about bidirectional applications, but it's also a lifetime cost advantage as well.

Jeff Christensen | Director of Investor Relations:

Thank you. The next submitted question is, of the companies you're currently working with, how many of you are you continuing to have engagement with in the last six months? And the other question, in the last 12 months, so any one of those timeframes.

Tim Burry | Chief Financial Officer:

Jeff, can you repeat that? It's unclear what you're asking there.

Jeff Christensen | Director of Investor Relations:

Yeah, so of the companies that you've said you're currently working with, you've worked with, how many are you engaged with, have you engaged with in the last six months or 12 months?

Kelly | Conference Operator:

Is it all of them?

Jeff Christensen | Director of Investor Relations:

I guess the question is, is it all of them or... The question, I think, is, is it all of them or any of them missing now? No, no one's missing.

Dan Berdar | President and Chief Executive Officer:

No one's missing. Some of them, particularly large companies, move slowly, but, you know, all the companies that we have been engaged with, we continue to be engaged with.

Jeff Christensen | Director of Investor Relations:

Okay, great. Okay. The next submitted question is, there are recent marketing literature about a new technology called an insulated gate transistor oscillator, or IGTO. Would this technology be directly competitive to BTRAN?

Dan Berdar | President and Chief Executive Officer:

You know, I did look at that. We had our guys look at it, too. There's really not much technical data available. There's no data sheets or anything for the product. But based on our review, it looks like it's an incremental improvement to a unidirectional IGBT. It's also not clear how it would apply to the overall IGBT market because the things that were done there will certainly create challenges to be able to reach both high voltage and high current. It's part of why you don't see MOSFETs used for high voltage and high current. It incorporates some of the same technology that limits where MOSFETs can go. But at the end of the day, it's a variant of an IGBT. So you would still need four devices, you know, pairs of this improved IGBT and diodes to make a bidirectional switch. And as a result, the conduction losses would be much higher than what you would get using a single B-train.

Jeff Christensen | Director of Investor Relations:

Thank you. The next submitted question is, please update us on the future expectations with large power global management companies that you're working with.

Tim Burry | Chief Financial Officer:

So, again, I'm not sure I understand the question, but on the companies that we're looking at, power management, market leaders, I mean, they're really looking at things right now like solid state circuit breakers, right? So there hasn't been a change necessarily in the last few months. I mean, it's obviously we're continuing to educate some of those companies. They're evaluating our technology. They have it in the lab. So we're continuing to make progress, but their expectations haven't changed. I would say the one thing maybe in that regard is, We've had some potential customers that are a little bit surprised that silicon carbide doesn't perform as well in that application as they may have expected it to because it's considered a high-performance product. But the reality is conduction losses are not the strength of silicon carbide MOSFET. So that's where our technology has a significant advantage at a lower cost point than silicon carbide, because it's not just that silicon's cheaper than silicon carbide, it's also that we really outperform silicon carbide in that application significantly.

Jeff Christensen | Director of Investor Relations:

Thank you. That concludes our question and answer session. I would now like to hand the call back over to Dan Berdar for closing remarks.

Dan Berdar | President and Chief Executive Officer:

I just want to thank everybody for participating in today's call and for the really good questions. We look forward to sharing VTRAIN commercial announcements before our next update call. Operator, you may end the call.

Kelly | Conference Operator:

Thank you. This concludes today's conference. All parties may disconnect and have a great day.