

**Battery + Storage — The Silicon Switch-Up****Host: Bill Derasmo****Guest: Jonathan Tan****Recorded: 3/18/26****Aired: 5/12/26****Bill Derasmo (00:03):**

Greetings and glad you could join us for another episode of the Troutman Pepper Locke Battery and Storage Podcast. I am your host, Bill Derasmo, partner with Troutman Pepper Locke. Today, my guest is Jonathan Tan, the CEO and co-founder of CoreShell. Welcome to the program, Jonathan.

**Jonathan Tan (00:21):**

Thanks. Glad to be here. Thanks for having me on.

**Bill Derasmo (00:23):**

Absolutely. Well, CoreShell is really your baby as you have been the CEO since 2017 when you helped found the company. You also serve as an advisory board member for the Center for Electrochemical Science Engineering and Technology at UC Berkeley. You also have an engineering degree from Cal Berkeley, but why don't I give you a chance to introduce yourself and tell us a little bit about why you wanted to come on the program and the good things happening at CoreShell?

**Jonathan Tan (00:51):**

Thanks, Bill. Yeah. Well, first, GoBears, proud of Cal alumni, and I think that DNA has definitely existed through my history as well as the history of CoreShell for many years. But we started the company back in 2017 after working in the industry for a number of years. I was a chemical engineer, trained at UC Berkeley, but then spent a decade working more on the commercial scaling of novel thin film materials and polymer membranes. And then we started in 2017 to apply some of those skills, both me and my co-founder on thin fill materials to really solve some of the key challenges associated with batteries because we felt like they were going to be the most important technological piece of the new energy transition, whether that related to electrification of vehicles, grid storage, and now all the applications and devices that we're using, including data centers and AI.

(01:43):

So I think batteries are the heart of that, and I think we were definitely right in choosing to work in batteries. I think what makes us unique in this space of batteries is that we elected to focus on a couple key things that we felt the industry was going to need. One is lower cost solutions, so really driving economics of batteries in a profound way. And then second, using materials

and processes that were inherently scalable. So we have now been working on the lowest cost battery anode that is 100% domestically producible using critical minerals that we are producing here in the United States in abundance. And specifically that is metallurgical silicon, which is, in our opinion, the best holistic replacement for Chinese graphite out in the market today. So that's really what we're excited about is really solving some of the key issues that we believe the industry is facing presently with a solution that can be lower cost and abundantly produced domestically.

**Bill Derasmo (02:44):**

Well, the supply chain issues are certainly timely pertinent given the era that we live in here in 2026. So why don't you talk for a second about the idea of this replacement for graphite and how important that is and how critical that can be for the United States moving forward. Batteries are only going to become more ubiquitous. Even though I understand the current administration has a push on for greater use of fossil fuels, for instance, but even with that, the battery deployment continues to expand exponentially. And with load growth around the country, it's really going to be an all hands on deck or an all the above type solution, in my opinion. So maybe you could get into the importance of your answer for replacing Chinese graphite, how you can domesticate the supply chain.

**Jonathan Tan (03:30):**

First of all, I think you touched upon a great point there. The current administration, and I won't go into necessarily just in the political angle of things, but I would say that the current administration is actually aligned with the previous administration in one aspect, which is that we want to domesticate the supply chain. We don't want to be reliant on foreign nations, especially foreign nations that we may have political conflict with, that we may not be able to readily source these materials. And unfortunately, that is the status that we're in right now. So over 95% of the world's battery-grade graphite comes from China. Almost all the available commercial batteries out there in the world utilize Chinese graphite as the dominant source for the anode material. And that is a major risk for us as a nation because exactly like you've mentioned, we're now utilizing batteries across multiple industries.

(04:23):

So I think the one that of course gets the most headlines probably is the electric vehicle industry, and that has obviously had some more administrative changes from the previous administration where tax incentives and things have kind of, I think, stalled a little bit of the progress that we had made in terms of electrification of vehicle adoption growing as fast as we had predicted and hoped. We still think that it is going to be the future of vehicles, but even if you take electric vehicles out of the picture, it's exactly what you said. AI, the growing need for AI, which is going to be super power hungry, the fact that we're going to need energy for all of our household devices now, even from the dishwashers to our cell phones, our laptops, everything is now becoming electrified. All those things are going to need more energy and more energy storage and more batteries.

(05:14):

And so to rely on a foreign nation to supply the most critical or one of the most critical components of the batteries that need to be utilized for all these devices and applications that we are going to need to grow our country is really going to be dangerous for us from a dupic or industrial standpoint. And so what Corshell is proposing is switching that graphite reliance with something that both economically makes sense, which is that it is lower cost. So silicon can actually be lower costing graphite. It's one of the few materials it can produce domestically that is lower cost than Chinese graphite and can be abundantly produced. We're producing hundreds of thousands of tons of this material today. We're not utilizing it for batteries. And that's really where Corsial comes in is that we have really made innovations to turn this very low cost and bundling produced material into a viable battery anode.

(06:11):

And so we're excited to now be commercially deploying that, to be demonstrating that across multiple industries. And we talk about the proof points that we've had along the way and the scaling that we've done, but that really is the thesis that we brought. And now we're at this juncture where we're scaling and commercializing this technology.

**Bill Derasmo (06:27):**

You have a video posted on your website, I believe, and this talks about the silicon production in the Midwest and talk about the quartz that is part of the process that comes from the US Southeast.

**Jonathan Tan (06:38):**

Yeah, that's a great shout out. We'd welcome folks to come check out that video. We wanted to put that out there to really demonstrate this as almost a missing or a hidden piece of the puzzle that people aren't talking about nearly enough. People are talking about critical minerals and our reliance on China, which has made a lot of headlines. We haven't seen as many people talk about the one thing that we produce in abundance here or one of the few things that we produce in abundance here, which is this silicon coming from the quartz. And it is, in my opinion, a really elegant national story. And we partner with a company called Fairglobe who owns those mines, those corse mines in the southeast in Alabama, West Virginia. And they also own the smelting facilities that turn that quartz into the first stages of what's called metallurgical silicon, which is the commodity graded silicon that's utilized for all the different silicon applications that we use.

(07:27):

That's the first step. So those militrical sites are in Ohio, Alabama, and other states as well. So it's this nice kind of tying together of quartz and raw materials coming from mines in the Southeast, getting processed in the Midwest to turn into the first commodity-grade view products. And then coming out to California where Corshell is, where we're turning that commodity grade of silicon into a viable commercial antiotic material. So we're kind of tying all

those three pieces together and utilizing something that we feel has been really underrepresented as a viable resource and something that we're already producing in the, again, hundreds of thousands of tons. Let's utilize what we have already to really take care of some of these national interests

**Bill Derasmo (08:13):**

That we have. Good stuff and pertinent stuff for the times in which we live. So it's interesting. So those are the inputs into CoreShell. Now, maybe talk through where CoreShell, what your input is into the larger battery ecosystem.

**Jonathan Tan (08:27):**

Yeah, that's a great question. And that's, I think, what we're really now proud to be talking about and announcing to the world is that we have now demonstrated that we can take this, again, cheap, abundant national resource that we're reducing. We can convert it into an anode material and we've taken it one step further where we've demonstrated that we can build commercial ready batteries out of this material. We're already delivering this to a number of sectors. One is we have automotive sampling agreements, joint development agreements that we have been working on for a number of years. So this has been tested and validated by a number of large automotive customers, both domestically and in Europe, and we're going to have some announcements around those soon, so please be on the lookout. We also have been delivering these batteries for defense applications. So that's one angle that we haven't talked about, probably a misstep on my part, not bringing that up sooner, but every single battery that's being used in military efforts in the war in Iran, in the drone applications they're utilizing overseas right now, a lot of that relies on foreign national materials and specifically Chinese graphite.

(09:33):

So that is a major risk when you think about if war breaks out, which is not a hypothetical anymore, if these things start to really deteriorate, where are we going to get our batteries, where we're going to get our sources of materials? And so the military has put out the recent NDAA bill outlawing any foreign entity of concerned materials and any war fighting efforts starting in 2028. I think people are really trying to push the pace to get that adopted even sooner if they can. So there's been a lot of push of, can we domesticate the supply chain for the industrial uses that we talked about, but also the really defense and national security interests that we have. So Corshall is already delivering commercial batteries for those and we have a lot more contracts coming up to deliver defense batteries in addition to serving the industries such as electric vehicles and hopefully data centers and AI soon as well.

(10:23):

There's a lot there.

**Bill Derasmo (10:24):**

And talking through the defense aspect to this, boy, that's going to be a big change if that really goes through that by 2028, we're going to have to domesticate supplies on some of these critical minerals. But thank you for raising that because I doubt that it's on everyone's radar for who it should be on their radar. And so you've got the defense industries, you've got autos and you talk at the end there about data centers. Now you're getting into either grid scale, best battery energy storage systems or what we call behind the meter, maybe co-located with a data center. And so yeah, I think that that's a great source of load growth on the system. And so to the extent that you can play a role there, I think the opportunities are almost limitless. Each announcement of new data centers, project, Stargate, these different massive undertakings of data center systems, really more than just individual installations around the country, as you say, to support AI.

(11:25):

I just think it's a huge need in the country right now. So yeah, to the extent that you could partner in that space as well, I think that that's, like I said, almost a limitless opportunity at this point in time.

**Jonathan Tan (11:37):**

Yeah. A couple things that I'll mention in response to what you said. One, that NDAA bill has already been signed. So it passed in December of 2025, so that has already outlawed any foreign entity concerned materials which includes Chinese materials in any war fighting efforts starting in 2028 and beyond. And actually there's going to be a ratchet that starts even sooner than that. So this is something that the administration already recognizes as a massive problem for our current climate. And then to your second point around data centers and AI and the boom, we certainly think that that is going to be a future growth where batteries are going to go to. That's already started to happen. What's interesting to me is a couple of things. One is that we're still sourcing a majority of those batteries for data centers and AI from China. So if you talk about reliance of one of the biggest growing industries that we have on Chinese materials and Chinese resources, that is very reliant right now on materials coming directly from China.

(12:36):

So we don't have very many domestic solutions for solving that crisis. And the second thing is, in my opinion, just a basic math equation. So people can go take a look at the US geological survey and take a look at how much graphite that we produce in the United States is very little, almost none. Take a look at all the other materials that were reduced here in the United States, even including lithium metal, which has been proposed in an alternative option. There's really on the periodic table, very few elements that we can produce domestically here in the US that can solve this crisis of real massive energy storage demand. And I'll put it out there that I believe that EAI is going to grow, but even if you just take a look at the current EV demand, and if it doesn't grow at all, it's still going to be needing a ton of batteries to fuel as an industry.

(13:24):

So both of those are going to be very much at the lead of battery demand. And so if you take a look again at the periodic table and what we produce, silicon is the only option. And our partnership with Fairglobe provide the security that I think is really critical. And I think this is an area where people should look at investing more into from both a national security as well as hopefully a private sector.

**Bill Derasmo (13:48):**

Yeah. I mean, I think, again, the load growth story is incredible. And then I'll add that one of the survivors of the one big beautiful bill in terms of tax credits is grid scale storage. The energy storage survived, sort of, and then wind and solar took a hit. Moving forward though, it's important to point out that the tax credits for grid scale storage survived for the most part, and so that is a distinction moving forward. The \$7,500 tax credit for the autos did cause a hit in the auto sector, but I think there'll be a natural demand that'll continue for electric vehicles and also other applications. We've had others on the program where you have electrification for things like vehicles or devices that would be used in warehouses, for instance, like forklifts, those sorts of things. So even there, you'll continue to see growth and demand for electric usage cases that involve obviously batteries.

(14:49):

In any event, why don't we just switch gears for a second and talk about the investment environment and some of your experiences in building CoreShell on the financial front?

**Jonathan Tan (15:01):**

Yeah, it's a great question. And I think something that I'm happy to talk about, we're currently raising our series B to build our first commercial scale facilities. We have a pilot production line that's up and operational that I mentioned is already producing commercially ready batteries that we've been delivering to defense contractors and sampling with automotive customers for a number of years. And so I think we are ready to take that sort of next step growth and we've proven that the customer appetite is very strong. So there's been no lack of customer signal on our side of saying this is something that the industry needs. This is something the private sector needs is something that, again, the defense administration, the public sector needs. But it's been in frank firms, a struggle to get the investment community to really be excited about these types of opportunities. And we will close around and we definitely have investors that we are very thankful have really kind of backed it.

(16:00):

But as a general sort of ethos, to me, it's been interesting to see all this, I think, fervor around backing AI companies and backing the software side of AI and some of those things, and almost a lack of understanding of all the tools, all the picks and shovels, so to speak, that are going to be necessary to even fuel this transition into AI and this transition into being able to adopt these things. So we need to invest in infrastructure. We need to invest in the real fundamental things

that can actually produce and deliver the right amounts of energy, the right amounts of power, all these things that are going to be necessary for these other industries to really grow and thrive here in the United States. And again, it goes back to what I was saying. If we rely on foreign sources for a lot of these things, we're going to be putting ourselves at risk of not having enough resources here in the US to even do the fundamental activities that we really want to do, whether that's AI or I'm going to continue to bring back transportation or delivery robots or anything that really is going to be critical for servicing the products and services that we're going to be utilizing heavily here in this next generation.

(17:21):

So I think it's a misstep. The investment community has been so fervently chasing after, I think, what's been kind of shiny and new, but really forgoing some of these opportunities to make investments in the areas that will return a huge amount of value, both economically and with value to the whole industry and the nation as a whole.

**Bill Derasmo (17:43):**

When you talk to the investment community, what sense do you get in terms of their awareness? Because you hit on a point where you said, okay, AI and all the wonderful things that it could do, but all the real infrastructure that goes into actually citing and building a data center and connecting it to the rest of the world, both from an electrical point of view and of course from a communications point of view, but the electrical infrastructure around that is substantial. And so what's the awareness level right now when you go out to the investment community?

**Jonathan Tan (18:21):**

Yeah, I would say that, in my opinion, and this has probably been in the making for, I don't know how long, probably the past decade or so, because the investment community has built up this culture of really understanding SaaS products and software products. So to me, there's a gap here in what people really can understand and what they feel comfortable understanding and getting their minds around and what is really needed, right? So there's that gap of, okay, there's what people understand and there's what's needed for the industry to really thrive. And there's been very few people, in my opinion, that have the expertise to really understand those other things, like you mentioned. There's not a lot of investors out there that understand real fundamental technologies, especially hard tech. There's not a lot of people that understand materials innovations, that really understand those kind of critical innovations that are needed to, again, build infrastructure, build hardware, build electrical systems, those sorts of things.

(19:25):

And so because of that, I think there's a very limited subset of those people that are investing in this space and there's been a lot more capital being deployed on all these other things. And so there's been capital that's kind of chased what they know and what's also being, in my opinion, probably overemphasized on the software side and less capital being deployed on some of these other areas. And both are needed, let's be fair. But I would say that the area that has been, I think, less talked about and less represented is, of course, in my opinion, the real

hardware and fundamental infrastructure types of activities. And so we do need more, but I will say one last thing, which is, I think this is an opportunity for folks as well. So the people that do understand this stuff, the people that can have perception, this is an opportunity because the companies like myself and others in this space who are looking to grow and have real traction and have real innovation that's necessary, we're not getting the same overhype valuations that we were getting a few years ago.

(20:30):

And so it's an opportunity for investors who are smart to actually come in and make those real types of once in a generation venture returns that they're looking for if they can pick the right companies. And so that's the one thing that I'll put out there is that folks that are really active in this space, take a look at some of the companies that you think are going to have these massive impacts, hopefully Corshell being one of them, and this is really where most amount of potential returns are really going to come from, in my opinion.

**Bill Derasmo (20:56):**

Yeah. I'm not in the investment community. I'm on the legal side, but my gut is, or gut instinct or impression anyways, is in the same place where you are because I tend to deal with hard infrastructure companies. And it's amazing the lack of awareness when people talk about these issues. They just know, well, data centers are driving up my electricity bill and et cetera, but they don't really dig into it. They don't understand, well, okay, but there's a lot of infrastructure that needs to be built in order to make all of this work. And so the other thing, anecdotally, if you go to dig into an old line company like GE, well, GE Vernova anyway, they build the turbines, right? There's like a six-year waiting list. Now maybe that's changed a little bit. I don't know. And they've talked about putting in or introducing smaller scale generation sets, but it's a long waiting list to get a real combined cycle gas turbine.

(21:58):

But that, to some extent, speaks to the disconnect because it's a huge hole in the economy. And you would think by now someone would've rushed in to fill it. It doesn't appear to be the case. And I know it takes time for some of these things to correct, but it may not seem connected to the point you're making, but I think it is. It's just that there's a disconnect right now in society. Different ways, if you want to get in on this boom, so to speak, this AI boom, there are different ways to do it other than investing in Nvidia to zoom out at a high level, great company and there's others that are part of whatever they call the Magnificent Seven or whatever. All that being said, there are other ways to be, first of all, part of the solution that's important for society, but if you want to make a good return on your investment and you're one of those companies, so you're on the ground on the front lines trying to fill a need, trying to domesticate a supply chain in a critical area for the country really.

(22:57):

Anyway, it's my soapbox, so I appreciate people putting up with it for 30 seconds, but from everything that I'm seeing, it connects up with what you're saying.

**Jonathan Tan (23:06):**

Maybe I'll just add to your soapbox and again, the listeners will allow us here to kind of maybe just finalize this point in my opinion. I would say that I recognize what the challenge is, which is overall, other than in the AI sector, capital availability is very low right now. So there's a lot less capital flowing in the venture and private investment space just overall if you take a look at the numbers. And so people have just a lot less bets that they can make right now than they could a few years ago. I think that definitely is true. There's been a lack of exits at sort of the top end that has facilitated less cash flow. And so what I think is needed are folks to have a couple things. One is a little bit of actual bravery, right? You have to take chance on some of these things and really be able to be willing to stick your a little bit more risk than you were needing to a few years ago.

(24:01):

And so the investors that are not brave, that just want to follow on for what the large investments are going to, great. You can go and invest in NVIDIA and I'm sure people will make some decent returns on that. But if you really want to, again, make those outsized returns, really make an unusual amount of return, I think you have to take a look at the areas that the mass market is kind of missing, right? And it kind of goes back to this gap that you're talking about, which is really what creates these outsized return possibilities is that people who can understand that there's a gap right now between what is really critically needed for the industry, what is really going to drive all these other things forward, and a gap between that and what people are really actively trying to invest in, right? That is the gap in my opinion.

(24:53):

And those people that have the bravery and the smarts to recognize those companies and see those will make the most returns in this area. That's my bet.

**Bill Derasmo (25:01):**

Well, historically, when a person has been able to spot that hole in the market, they've made become billionaires or whatever it is back in the robber barren age, 100 millionaire, now it's billionaires. But yeah, no, I mean, that's the whole idea, right? If you think about the people who are the most successful investors in history, if they spotted that hole in the market and they bore into it. And so I think that's where we are in some of these areas that they're just not focused on it and they need to be because as we've talked about now on this program, there's a lot more that goes into it than just building a better AI algorithm or the chip or whatever it is, all the other traditional infrastructure that goes into it. And if you're going to fuel these things using grid scale storage, energy storage, then that's where you guys come in.

(25:54):

And given all the turbulence in the world right now, domesticating the supply chain, this is the moment to do it. Look, even if hostilities in Iran get settled out or whatever it is, we're in kind of an ongoing age right now of, I don't know, I don't want to be pessimistic, but maybe a little bit of

continual low level conflict with some of the United States' perceived adversaries. So in any event, I don't think the supply chain issue or domesticating the supply chain issue is going away anytime soon, I guess is what I'm trying to say. So anyway, I try to navigate those dangerous waters as best I could.

**Jonathan Tan (26:31):**

Yeah, agreed. I think tensions aren't going away and you're exactly right in terms of, I think regardless of what administration comes in, focusing on domestication of supply chain has been important. And the thing that I'll add to that, just to really kind of hopefully add one more layer to that is the US has really lost a lot of its capabilities of understanding and building up manufacturing and infrastructure. That's part of the reason why I think that we are in a hole when it comes to comparing ourselves to the sort of juggernaut of Chinese manufacturing and production of batteries, of electric vehicles, of wind, of solar, of all these things, is that they have decades of building up that infrastructure. You can get something designed and prototyped, I think, within 48 hours in Shenzhen. You can get a whole new robot built within 48 hours there from scratch all the way design.

(27:22):

That would take months here in the United States to complete. So those types of things are things that the US is now lacking and we are behind. And so that is one of the things that I think we really see. It goes back to our excitement about when we went to go first tour the facilities in Fair Globe, when we saw the mines, when we saw the real metallurgical sites that they were building up, one of the things that I remarked is that you just don't see those types of things here in the US much anymore. You don't see these kind of heavy manufacturing, heavy industries that are necessary to really build up these infrastructure projects. So hopefully this is also a wake up call to kind of make that really spotlighted and shown to everyone that if US really wants to be a leader and really regain its status on the world, we should really definitely look into how do we invest in building back up the capability to actually make real things, real products here in the US.

**Bill Derasmo (28:20):**

Oh, yeah. The thing that's lost in all the political noise, and there's a lot of it right now, but the thing that's lost about, if you look at the Inflation Reduction Act and then you look at the One Big Beautiful Bill Act, the thing that they had in common is they were both more focused on bringing manufacturing in the United States. Now they went about it in two totally different ways, but the underlying theme was there for both. So it's kind of interesting to think about and agree with everything you said at a higher level about bringing back manufacturing, reshoring production capabilities here domestically. So totally in agreement on that point. All right. Well, if companies want to do business with you, why don't you tell our audience the best way to get in contact with you and your company?

**Jonathan Tan (29:06):**

Would love for folks to reach out. Come check out our website as a first off, <https://www.coreshell.com/>. There you can check out the technology. You can see the video

that you're referring to, Bill, on our partnership with Fairglobe and a lot of the news that we have. Please sign up for our newsletters so you can kind of keep in touch with our ongoing progress and then feel free to reach out. We've got an email and a phone line that's listed on the website and we welcome folks to come talk to us about partnering together to really build up this supply chain. I think it's going to be an integrated effort. We're going to need multiple parties, lots of folks involved, and we're very open to partnering together with the right companies to really make this possible because we're not going to be able to do it alone.

(29:48):

So excited to have people come check us out and reach out and talk to us more.

**Bill Derasmo (29:52):**

Well, thanks so much for being on our program today. Really enjoyed the conversation.

**Jonathan Tan (29:56):**

Thanks, Bill. Thanks for having me.

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