T.R Lugwig, CEO at Brooklyn SolarWorks Transcript

Welcome to Green Building Matters, the original and most popular podcast focused on the green building movement. Your host is Charlie Cicchetti, one of the most credentialed experts in the green building industry and one of the few to be honored as a lead fellow. Each week, Charlie welcomes a green building professional from around the globe to share their war stories, career advice, and unique insight into how sustainability is shaping the built environment. So settle in, grab a fresh cup of coffee, and get ready to find out why. Green Building.

Hey, everybody, welcome to the next episode of the Green Building Matters podcast. Man, once a week I got an easy job. I get to find someone and just have a chat with them and give you a peek into that conversation. How did they get to where they are today and what are they still excited about in this green building movement? Today I've got TR with us. He's the CEO at Brooklyn Solar Canopy company and I think he's got a couple other businesses, too. We're probably going to unpack. So TR, welcome to the podcast.

00:59
TR
Hi. Thanks for having me on.

01:01
Charlie
I told you I'm in Atlanta, but I really am fond of everything about New York. Can't wait to learn a little bit more about what you're doing up there, but take us back. Where'd you grow up and where'd you go to school?

01:11
TR

I was born in a little town called Lexington, Massachusetts, just outside Boston, birthplace of America's liberty. That's the way we like to think of it over there. But yeah, it was a nice suburban town outside Boston. My mom was an earth science teacher, so she had a very strong bent towards the environment and environmental education. And so the deck was very much stacked for me on where I was going to end up. She still does that. She's 83 years old and still very much a climate warrior. I think it had a pretty strong influence on my upbringing and certainly my career. I grew up in Lexington, Massachusetts, played lacrosse as well, and so got recruited to play lacrosse at the collegiate level. Wound up going to a small liberal arts school out in the middle of Ohio called Ohio Westland, which is at that time and still sometimes one of the best d three lacrosse teams in the country. And so that was one of my main focuses while I was there. Majored in environmental studies and geology while I was there as well. So I really started to kind of amp up my environmental background and learn about the earth systems. And back then, this was like mid nineties climate change was a thing, but it wasn't nearly as sort of existential as we all know it is now. And it really wasn't like career pathing at that time. That made a lot of economic sense. There was consulting and that kind of thing for groundwater reclamation and those types of things, but certainly didn't suit my fancy that much. And as I got out of college, I was just looking around at what was hot, and it was kind of a hot topic back then. Yes, it sort of.com times and so got really into that and wound up getting into the it world for about five or eight years or so.

03:22
Charlie
That's the boom there. I saw you also got NBA there and e business at the right time, and I'm sure maybe carried forward to some marketing and maybe could tell us about your current solar businesses later. I'm gonna ask. Okay. Massachusetts, outside of Boston. You're in New York. Is it the Red Sox or Yankees or maybe a default to the Mets? I don't know.

03:43
TR

I was a kid when the Red Sox lost the World Series in 1986, and that is forever seared into my baseball brain. We were able to get some retribution for sure, which was super sweet. But I think it would be super hard for me, even though I've been living in New York for almost 20 years, it'd be super hard to be a New York Yankees fan or even. But most of my team are Mets fans, so I guess I that would sort of be my.

04:14
Charlie
Adopted team if I hadn't talked about the Braves then. You mentioned that early influence on your mom there. I love that. But any other kind of aha is like, all right, I'm going to really start making a career out of sustainability and eventually solar. What else kind of fell into place for you?

04:34
TR
You mentioned my MBA, that I went to Maastricht school of management, which is in the Netherlands, so a little bit far flung from the normal MBA path. While I was there, I met folks from all over the world. It happens to be one of the best schools for government employees from developing countries. And so I met people from all over the world. Zimbabwe, Tanzania, Uganda, Indonesia, Malaysia, Uzbekistan. Just have a sampler. The world. And while I was there, I got a chance to interact with a lot of these folks, and I realized that I had something within me that was very entrepreneurial. And these other folks were super smart, and they were smarter than I was, and they did better in school, but I was the one that helped start things within the school, sort of nurture new programs, that kind of thing. After I graduated, I started a business in the Netherlands, and a lot of that was focused around it. But I started looking more and more into solar panels at the time and got pretty interested in that. And so ran this business for a couple of years and then decided it was time to go back to the US. I think the European work perspective wasn't quite as hard driving as I was looking for at the time.

I found myself being the only person in the office at 05:00 so decided to try and get back to the states, wound up working, getting a job at Gartner, which is an it research firm, very well known for it consulting and market sizing and that kind of thing, and worked for them for about six years. And while I was there, they had an analyst that covered solar. And so I got to know the analysts really well, and we would talk about kind of where the big opportunities were. And at that time, this is sort of like 2008, 2009, there were PPAS that were being developed. So this is power purchase agreements. It's a market innovation that a few companies have started. SunEdison was one of the big ones at the commercial scale, and then at the residential scale, Solarcity. And Sunrun had just started developing this in California. And at that time I had an occasion to run into a guy who was a finance guy, had very strong financing skills, quantitative skills, but was looking for a business development and sales partner. I talked to this analyst at Gardner, told him what I thought the opportunity might be, and he said, you have to take it, man, you got to go. So took the leap into solar by starting a business for residential solar financing and focusing on the New Jersey market, which at that time was super hot. They had some market mechanisms called the SReCs, and the Srecs were extremely rich. And so it was way more than the wild west at that time. It was just like anything went. And so started this business, ran that for about four years.

07:57
TR
But during that time, that's really where I kind of cut my teeth in solar and realized that I really am cut out for trying to build businesses and go after new opportunities, build great teams. There's just a lot of satisfaction and just seems like immense predisposed to taking some early risks and going for stuff that a lot of people might not believe can work.

08:26
Charlie
Entrepreneurs aren't just dreamers. They have to be builders.
Can't wait to unpack a few of the companies. So that shows us how you got

present day, but one more look back, just kind of what's on the highlight reel? What are. Or a few of your proudest account post events to date.

08:44
TR
I think getting my MBA was a big one. I graduated from college. I never thought I'd get an MBA. I always thought I would get pigeonholed into being a groundwater consultant or something because of my geology background. So being able to kind of break out of that, go after something different and really build up my business chops, that was a big one. Starting these businesses has been extremely rewarding and definitely something that I'm super proud of and I feel like I'm getting better at also, which is good. So that's been extremely rewarding. But on a personal level, me and my wife are getting married, convincing her that I'm the guy. Yeah. We have two beautiful children. Eleven and eight. Yeah. To have them in my life is just incredible. I'd say, probably the biggest highlights.

09:43
Charlie
That's the highlight reel, man. I love it. Family man and entrepreneur. Hey, thanks for sharing. We have some things in common. I'd love to hang out. Okay, so present day, as I understand it, you've got Brooklyn solar works, you've got the solar canopy company on the product side. And gosh, there's even another business here, emo electric. Tell us, like what's the core? And then what are some things that you've added here around the. Around solar?

10:10
TR
So Brooklyn Solarworks is the core for sure. That is a company I started with two other partners in 2015. We had met at that previous startup company back in, what was that, 2011? And were doing residential solar financing. That was kind of an east coast business that went its own direction. And I got out of that, excited, and then brought two sort of high potential folks out of that company with me to rec solar, which eventually got acquired by Sunrun. And it all happened fairly

quickly, but all of a sudden were running the east coast direct sales operations for Sunrun. It was like 2014 timeframe and it was great. We had a great time. We were operating in New York City. We led the expansion into New York City. And the irony of it was that we were all living in Brooklyn, but were all driving out to the outskirts of New York City or even upstate New York and out to Long island or up to Massachusetts, but weren't doing anything in the core of New York City. I don't mind driving a little bit, but the daily grind, getting 3 hours away from home to go put a solar system on a roof out there just really didn't make a lot of sense. So we started thinking like, hey, maybe we should try and put solar on buildings here, like where we live. Not a terribly big leap to make, but it seemed like no one was making that at the time. We started investigating, why.

11:51

TR

A lot of that leads back to the very complex fire codes in New York City, and a lot of the buildings in our area, in the urban core of New York City, are flat roofs, and those are even harder to work with in terms of permitting. So we developed a product with a design studio in Brooklyn, and were kind of just riffing on it. We didn't even know we were going to start a company around it, but we thought Sunrun might be able to use it and were just generally interested in trying to solve this problem. A company that we were working with, these design studios called Situ Studios, and they were really well renowned for their design chops. They helped design Google's campuses and that kind of thing. They had really high level design prowess.

12:38

TR

And from there, once they developed a rendering of what they thought the product could look like, they were kind of like, wow, this thing could be super sick. And we were super invigorating. And the idea of like, trying to do solar where we lived was very attractive. So we made that leap in 2015. Originally, we weren't really a construction company. We were sales folks and finance folks, but we didn't really know how to build systems. But quickly we realized in order for us to get this thing off the ground, we'd have to become installers also. So I met up with a really great veteran installer in the area. He helped us build out our install capability, and within a few years, we'd gotten quite a bit of traction in this area within Brooklyn and really New York City, because we specialized in this building type. A lot of companies, at least most traditional pitch roof solar companies, run away from flat roofs, like right away they'll tell somebody they can't do solar or they'll disqualify. They just don't want the headache. And we leaned into it, and because we had this canopy, it solved a lot of the complexity, and we built it in a way where you could literally cookie cutter print these things on top of roofs.

14:00
TR
That was really our vision, to go house by house and put canopies on these roofs, raise the solar panels 9ft in the air and allow the fire department to do whatever they had to do underneath it, but still use most of the usable surface area. And so that really helped spark our company. Caught on a few years later, because the canopy structure was so useful, a lot of people were asking us if they could buy it from us. And so 2018, we spun off Brooklyn Solar Canopy company and that became our product company, where we're just selling our first design. We call it a frame canopy, but that company has done very well as well. It solves the problem, certainly in New York City, but we've built it out, so we've got engineering on a national level.

14:52
TR
It took a while to do that, but that is definitely another component to what we do here. It's pretty much the same people that work on it. We do have a few staff dedicated to the canopy company, but we go out to re plus do a bunch of regional shows and we've developed some other products since then that we're really excited about. All solar canopy versions, different designs for different use cases. But that canopy company is sort of the sister company, if you will, to Brooklyn Solidworks. And then Evo Electric is a company I started with a partner a couple of years ago, and it's focused on electric boats. So electrifying, boating, both

retrofitting, we call it repowering in the marine industry, but repowering with electric sort of empowering, if you will. There's a variety of different ways to do that. And so we're a dealer of a few sort of top brands of electric motors and also some of the really cutting edge, like, new stuff that's coming out there are 150 hp type motors that will drive a 2025 foot speedboat. So that's been a lot of fun. It is certainly very fun for me just personally as a hobby. But we're fairly early on that business and the market is still, I think, coming up to speed. Pretty quickly, we're going to start to see that have similar dynamics to the EV industry, especially on.

16:34
Charlie
The retrofit side, too, right?

16:36
TR
Exactly. Yeah. So those motors are now becoming more prevalent and we've just been doing it not terribly long, but long enough to. To know our way around how to do it. And got some great partners on that side. And obviously the. The vision is to try and charge all of those things using solar. So got to keep it full circle, you know.

17:03
Charlie
Let's talk about solar in your region there. You mentioned some racks, there's some New York City decarbonization efforts. There's money from NySerda. So I don't know. I mean it seems like you're in a really good place to do this work. And I just love how you saw a need for you and your partners, but you had to get that one block out of the way there on the permitting, especially on the flat roof. So that's pretty cool. But just educate us about solar. If someone's wanting to get solar on their house, how do you size it? YReally focus on the incentives, try to marry those up. I don't know what's a pro tip for someone that is really going in this direction?

17:41
TR
I would say a few things. You definitely want someone local. Solar is really popping off right now and there's all sorts of people that are trying to sell in certain markets. Definitely in New York City you really gotta know what you're doing or else you'll get pretty tripped up. So finding a local installer I think is pretty key to that because they'll know their way around the HJ issues. Department of Buildings, fire department, Con Edison. Yeah, that's table stakes just to be able to get the physical project completed. The other component is the incentive stack. in New York City there is an incredible amount of incentive to go solar. Of course we have the federal incentives which is 30% for residential customers, up to 40%, maybe even more for commercial customers thanks to the Inflation Reduction Act. IRa, that's just getting going. I think that is stimulating the market to some extent. And that's a federal incentive. So that's across America. In New York state there's also an incentive for, there's a personal income tax credit that will allow you to take a tax credit up to $5,000 on the system or 25% of the cost, whichever is lower. Usually it's 5000. There's still a state rebate in New York City so not super huge but it's a couple thousand dollars and that'll move the needle. And then in New York City we have what's called a property tax abatement. And so this is a pretty unique incentive.

19:17
TR
But effectively you now take 30% of the cost of the system and that gets deducted off of your property tax over a four year period. So we're talking like a pretty thick layer gig of incentives there that amounts up to somewhere around 70% to 80% incentive to do it. And that's before net metering. So net metering obviously is still an incentive in some ways. It's clearly under attack in various states. It's still relatively intact here in New York, although we're prepared to fight for that for as long as we have to. So at the end of it, if you're going solar in New York City, there's a lot of money on the table to help you do it. And because power prices are so high here, paybacks can be quite good. There's a variety of windows of

payback depending on how complex your job is, level of costs and that kind of thing. But youre in the four to eight year payback on solar, of course, costs are higher. It takes a lot more to try and get a panel up on a roof. But because the incentive structure is the way it is, it certainly helps. And power prices themselves are really the main driver of the paybacks there.

20:34
Charlie
Thanks   for that quick education. It's math, right? The math works. You should be doing it. I love that. Let's talk about the future. What are you excited about and maybe this renewables, this green building industry, anything coming at us we should be reading up on?

20:51
TR
The thing that we were all anticipating and it's slow to come in New York City, but when it does, it's going to be a whole new business is this notion of pairing solar in storage. It's being done more and more in California because of their changes in what we call NEM three net energy metering 3.0, which has been pretty detrimental to sort of the traditional solar business. But it has sparked a lot more use of storage and solar. And so we anticipate that something like that will start to happen here in New York, probably in New York City, where we're going to be putting in solar and adding in a battery storage system where you're storing that energy and you're discharging it at certain peak times. And by doing that, you're going to reduce the strain on the grid.

21:48
TR
And that will create a monetary incentive for, let's say a homeowner to do that, stitching a bunch of those systems together into what's called a virtual power plant. If you've got 110 kilowatt hour systems, you're operating at a very large scale, actually. And to be able to orchestrate those systems and coordinate them when the grid needs the power. That I think is the future of where these new

distributed energy resources are going. Solar for as much as we are pure solar people here, it's intermittent, and you can't guarantee when the power is going to be there. If clouds go over or nighttime, solar systems are not going to be doing much for you. But when you have a battery in there and it's dispatchable power, that brings a much greater value to the grid. And so that, for us, is what we're looking at.

22:46
TR
And it's very slow here in New York City. The fire department's been very strict about battery deployments. It is one of the biggest exercises in bureaucracy I've ever seen. Of course they want it to be safe. Of course we want it to be safe. But I feel like we're really way behind on deployments there. But we're going to figure it out. And as we do, I think this virtual power plant model will become something that I think can be very powerful here in New York City, especially given how power dense New York City is, and that the cost of power is just so extraordinarily high that bringing these kinds of resources in there to help alleviate strains on the grid, it's just a whole other value stream that these systems will start to be able to produce.

23:33
Charlie
Second, all of that, you got a really good grass on it, and hybrid buildings coming soon, once FDNY lets some of those buildings get batteries. So that'll be a great new revenue stream for you. You'll know how to handle that. Let's get to know you a little bit more here. Some rapid fire questions. What would you say is your specialty or gift?

23:56
TR
I'd say I'm sort of a joyful warrior. I love making people laugh and having a good time and keeping the mood light as best as possible, and trying to focus people's energy towards something that really matters. I've been doing that for a long

time. Really doesn't matter what context. Even back in my lacrosse, trying to keep it light and keep it tight and make it happen. I think that's definitely one of my special skills.

24:25
Charlie
I would say you gotta have a good time. I would think you'd be a serious, but joyful warrior. I'll take that. That's good stuff. Do you have any really good habits or routines or rituals that kind of help you stay on point?

24:37
TR
I meditate in the morning. That's kind of my way to center myself, focus on what's important, and be thankful for the gifts I have. Every day I just wake up and I'm like, man, this is some life I got. So being very thankful for it, and then focusing on the things that matter the most, making sure that our company is doing well and we're living up to our values. That to me is my main job here now, is to keep that tendency to the company when it comes to living out our values. That's the one habit I would say I have. Sometimes it's hard to do, especially with small kids in the morning. But you know, that's been keeping me pretty centered and I have to keep that going.

25:30
Charlie
Fantastic, man. Thank you for sharing. I've got three boys, they're a little older, 1613 and eleven. Busy house and busy work. But one thing I really also heard in there is the antidote to overwhelm is gratitude. You physiologically can't have those two feelings at the same time. So if you can really start your day with some gratitude, they might get crazy. Just glance back at what you wrote down or you thought about it, might not fix it all for hours or days, but I'll give you a nice little reset there. But gratitude is the antidote to overwhelm. Cool, man. Just a couple more things here. I always like to ask a high performer like you coming on the podcast, is there a book you'd recommend? It doesn't have to be about buildings

or a documentary or cool podcast. I don't know. Just what's a pro tip you want to share here with our listeners?

26:17
TR
We have recently, in the past year and a half, adopted an operating system for the business, which is called the Eos or entrepreneurial operating system. It was written by a guy named Gino Wickman. His book is called Traction. For a while, just a couple of years ago, we kind of, as a company, we're about 70 people at the time, were kind of capping out. We had grown to our size. We were doing well, but were starting to feel the stresses of being a bigger company. And we really didn't have an operating system here. We didn't have formal cadence and that kind of thing. And so we poked around, tried to figure out what we do, and got turned on to this entrepreneurial operating system, eos. And I would say that's been the biggest accelerator in our business maturity that we've ever had by far. So sometimes people have to go through it first, and then they kind of come up with their own flavor of how they want to run their company. Sometimes people want to run a pure EOS system, sometimes people want to put their own spin on it. But there's a lot of principles in that book, and it's not terribly long that I've used and were implementing here. It's really helped quite a bit in terms of at least my own personal stress on how the business is being run and making sure that people kind of know what they're shooting for, what they're going to be held accountable for, being clear on who should be doing what for a long time. Because we're a small company, we'd sort of, like everyone jump in on an issue, and one person would do it one time and another person would do another time. And so there's this, a lot of overlap on accountabilities. And so being able to clarify that and know that there's really only one person that can be accountable. Yeah, that's it sounds so simple, but, like, once you put it into practice, it really is quite liberating, I would say, and reduces the stress on the organization quite a bit. So, anyway, I could talk about clay a bit.

28:43
Charlie

Yeah, I mean, everybody will put a link to traction. Just the entrepreneur operating system. If you ever really wanted a good agenda for a meeting, you can do the level ten meeting, make sure you kind of set the level set with what's going on in people's lives. Maybe your management team, your executive team, and then you get into the business. I think it is important to keep score how your business is doing. So you have your scorecard and just so how do you measure things? And you try not to use words like KPI's and big business lingo. Let's just put it in simple terms where everybody gets it and they know for winning or for off track. And I think that's the secret to EOS. I'm a big fan, too. We should. But we'll put a link to EOS, another one. As a business owner, you might want to check out, you probably know profit first. Some good books there. So just a couple more things as you look back on your career so far. Tr, is there anything you wish you'd have learned earlier?

29:40
TR
Geez. I think this, the EOS stuff, I think knowing that earlier in my career probably would have. How a lot, actually. We're just operating off our gut. And I had my MBA, so it wasn't like we're kind of just totally making it up. But I think just from a structuring perspective, just having clarity using this system. And there's a million different systems, of course, but this one in particular, I think I've just found myself being able to use that paradigm so much in my life. And it really does help you sort of filter out all of the issues that come in and try and figure out how to solve them fairly quickly. So I really do wish I had kind of been taught these skills a bit earlier. It's, to me, a pretty powerful set of tools to have.

30:37
Charlie
There you go. That's a big endorsement. I love it. All right, hey, as we wrap up, man, I really enjoyed our conversation here and look forward to running to you in New York and coming over to Brooklyn.

30:50

TR
Have a beer on the rooftop.

30:51
Charlie
Okay, I'll check it out. So let's say someone's listening to this podcast, man. They're loving your story and they might want to get into solar, they might want to get into renewables and they're just now jumping in. Any words of encouragement for them as we come to a close.

31:06
TR
It is still extremely wide open. Strangely I've been doing this 15 years, does feel like we're just getting going and so it's kind of never too late. If you've got special skills and you can bring something to the table, there's definitely a place in solar renewables for you. Because this industry and this sort of general set of technologies is going to grow so fast in the next ten years because of things like the Inflation Reduction Act, climate change, energy prices. There's so many macro trends that are pushing in this direction that there's going to be so much opportunity. What I would say to get going though, is get your foot in the door, do whatever you have to do to just get some experience. Often people will try canvassing or selling.

32:04
TR
Usually those are the sort of more plentiful jobs. Anything to get your foot in the door to get a little bit of experience within the industry. And then from there you can kind of start to build out your network and meet new people and new companies. And I don't know, we're all a pretty friendly bunch, I would say, in the solar biz, and everyone's still looking to work together, even though we're competitors sometimes. So find a good company. I would say as a shout out to my amicus crew, we're part of a solar cooperative that's 80 solar companies around the country. Super mission driven, very tight group.

32:45
TR
If you're really looking to get into solar and you're interested to find some company that is mission aligned and very mission driven, take a look at amicus solar cooperative and you can see a list of all the member companies there. And there's so many companies around the country. The strong chance that they're going to be one that's pretty close to where you live there.

33:10
Charlie
All right? There's their roadmap. That's where you go find a mission driven company to work with and really make some change. I can tell that's how you're running your businesses. TR and I just want to say, hey, man, thanks for being on the podcast. You're doing some amazing work, and I do look forward to looking you up next time I'm in your area. So everybody connected with Tr. Check out the websites and make sure you connect with them on LinkedIn. Thanks, man. Thanks for being on the podcast.

33:35
TR
You got it. Okay. Thanks for having me on.

33:39
Speaker 4
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