

Solar, Batteries & the Future of Resilient Buildings with Jesse Michalski | Transcript

00:02

Speaker 1

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. Green Building Matters. Hey, everybody. Welcome to the next episode of the Green Building Matters podcast. I'm your host, Charlie Cecchetti. Once a week, I interview a green building professional. Somewhere in the world we're starting to zoom out and call it decarbonization, or call it over here, resiliency and tech.

00:51

Speaker 1

And today we're going to talk renewables. And so excited we got introduced to Jesse from one of our previous podcast guests. So, Jesse, welcome to the podcast. How you doing today?

01:01

Speaker 2

I'm doing well, Charlie. Thanks for having me.

01:03

Speaker 1

Well, I know we gotta talk about that one cool elementary school project where a lot of this ramped up, but. But first, just take us back before we learn all about how you got into renewables and solar. Just, hey, where'd you grow up and kind of start your career?

01:14

Speaker 2

I grew up in an extremely small town in northern Wisconsin. Park Falls, population less than 3,000 people.

01:23

Speaker 1

Okay.

01:23

Speaker 2

Our nearest, our nearest big box store was probably an hour drive. So very rural Wisconsin. Grew up. I was always outside as a kid. My family had 10 acres of land in the woods and hardly ever spent any time indoors. Always liked being outside, working, playing in the woods, helping my dad cut firewood, all kinds of things like that. Graduated high school, never really knew what I wanted to do. We had a program in our area called the Wisconsin Conservation Corps. It allowed us to high school graduates to work typically alongside the DNR or the Forest Service at. For minimum wage. But then we got tuition vouchers, so got to do some pretty cool things there. Some prescribed burns and just really enjoyed kind of that environmental piece of it, being outdoors, working in nature.

02:11

Speaker 2

And then after that, attempted to go to tech school. Had a lot of fun. Didn't. Didn't have a lot of success. School was not for me. By the time I graduated, I was very much hands on and through a variety of trying a few different things, really settled on an electrical apprenticeship. So pursued my electrical apprenticeship.

02:31

Speaker 1

I love that. Well, and then that's where you spent your career. Okay, so kind of got a Feel for sustainability, nature. It was just how you grew up right there in that rural area. I'm from a small town in the North Georgia mountains and made it to the big city of Atlanta and stuck around. So, okay, early electrical career. When did you first start seeing like solar? Was that. That came later or when did that show up for you?

03:00

Speaker 2

Probably about halfway through my apprenticeship. So I went through a five year apprenticeship program. I started with Eland Electric in 2003, got my apprenticeship in 2004. I think it was around 2005 or 2006 is when our company had its first opportunity to be a part of a solar photovoltaic or solar PV installation. And our owner at the time really felt like that was going to be the next thing. We had seen it growing on the coastal states, not so much here in the Midwest, but he really felt that as electricians, that was our work, that was our responsibility. And it was really our owner at the time that pushed and promoted

and spearheaded our involvement. As a young apprentice, I just wanted to put as many feathers in my hat as I could.

03:46

Speaker 2

So took every opportunity I could to learn as much as I possibly could. And when that opportunity came about, I really jumped on board with it. Enjoyed it, really like doing that type of work. We don't work indoors. You really can't install solar panels inside. So it kind of goes along with that, being outdoors outside, always exposed to either the sun, the wind or the rain or the snow. But that was our first opportunity and we really as a company kind of ran with it from there. And I really had a lot of opportunity to be involved in that from day one. Kind of naturally allowed me to spearhead that long term for us.

04:23

Speaker 1

Oh, fantastic. You know, I like to ask about mentors too. And then just a little look back on the career kind of highlights so far and then we'll talk about, you know, your company. So. Yeah. Did you have any mentors along the.

04:36

Speaker 2

Way as a young kid? My dad. I always looked up to my dad. He worked at the local paper mill, which was about the only thing in that town that kept people employed besides the bars. So thankfully I stay out of those. But my dad was probably my biggest mentor. Taught me to work hard, taught me that, you know, sometimes the most important thing, you know, is what you don't know. Understanding and being honest with yourself that you may not know everything. And when you don't, then you gotta raise your hand and took a lot of good advice from him and childhood, you know, growing up, stages of life, and then Once I got into the apprenticeship, the construction industry is just full of a ton of really good people. Mentorship is really easy to find in the construction trades.

05:20

Speaker 2

So we had some really good electricians that had worked for us and are now retired, but really took to a lot of our journeyman electricians and they really, they take all of the apprentices under their wings and it's really just a. The apprenticeship program is naturally built as a mentorship program. So had a lot of opportunities to have some great mentors in my young career.

05:42

Speaker 1

Man, that's fantastic. It's so important to give them a shout out if they're with us. Make sure you send them a message, what they mean to you. Sometimes they don't get that feedback loop. So I'm big on mentors. Yeah. What are some of your proudest achievements so far?

05:55

Speaker 2

Boy, that's a good question. The Menashe Maplewood School project, electrically career wise, that's probably one of my proudest achievements. That was kind of a milestone project for us. Being able to be involved on the front end of that project, assisting with the design of the building, helping it be solar ready and then seeing that all the way through to full project implementation. That's probably, that's. I'd say that's my so far proudest career achievement.

06:24

Speaker 1

And you know, that's the project that, you know Teresa Lehman, who's been on the podcast a couple times, we're lead fellows. She just couldn't speak more highly of you. And also Dale. So, you know, if you could just tell us about that project and then we'll talk more about your electric company. So just. Yeah. What do we need to know about the school project? You. Why was it so important at that time to go zero net energy? Can you tell us about that project?

06:46

Speaker 2

Yeah, we had been contacted by the architect, I think through Teresa's push, because weren't involved. From day one, the building had already been for the most part, fully designed. But the school district, as part of their referendum, had asked a few questions around energy efficiency, clean energy, carbon reduction. And the referendum results were overwhelmingly in favor of that brand new middle school being built as efficiently as possible. At the time, they really didn't anticipate they'd have enough room in the budget to install a solar system, but they knew they wanted to make the building solar ready. So the architects and engineers had kind of tossed around some thoughts and concepts and kind of quickly, Teresa quickly realized that they may not have been the best equipped to determine what really solar what? Solar ready really meant. So Teresa pushed.

07:40

Speaker 2

We got involved and helped them really initially just designed the building to make it solar ready, structurally, make sure that the roof is capable of supporting

the weight that would be added by a roof mounted solar system electrically, making sure that conduits were roughed in and ran from point A to point B during the building construction, so that if solar was added later, then nobody would have to tear ceiling tiles out and retrofit all these conduits. So that was our involvement. Day one was just helping them understand what solar ready really means, Helping the design of the building accommodate a future solar system and a future battery storage. And then that quickly kind of grew into, well, all right, so now we got the building solar ready, just, you know, off the cuff, what would it cost to do solar?

08:23

Speaker 2

So we helped them work on some budgets and initial designs for how much solar they could fit on the roof. And throughout all that process, you know, we knew that the goal of the building was to be net zero energy, no natural gas in the building. The building is completely heated and cooled by a geothermal system. There's natural gas service on the property, but that is strictly for emergency backup generator, which is now the secondary backup because we have our batteries.

08:50

Speaker 1

Yeah, so it sounds like it came back.

08:51

Speaker 2

Yeah, we knew that it was going to be zero energy. That was the design intent. So were given some. Some estimates on the energy intensity of the building footprint, rough numbers on how many kilowatt hours they would consume in a year. All projections, of course, but so we designed around that, gave them some rough numbers for solar, what it would cost. And from my understanding, as the building came in, the bids came in under budget, and they were able to afford not only the solar, but solar, plus a sizable battery backup solar energy storage system as well.

09:24

Speaker 1

Man, that's fantastic. Okay, all right, real talk. You just delivered a LEED certified building, saved energy, reduced carbon, optimized daylighting, and then you slap a tiny generic plaque on the wall like it's a participation trophy. Come on. With buildingplaques.com you can actually show off the brains behind the building. Your scorecard, your strategies, your team, the stuff that made the project great. Architects, engineers, contractors. This is your mic drop

moment and plaque form. They're fully customizable. Look sharp enough for your lobby and take like, a few minutes to design. If you did the hard work, don't hide it behind a boring plaque. Go to buildingplaques.com and build a plaque that actually earns lead and inspires twice. You know, let's Talk about your electric company and then zoom out. I want to get back to just how important is it to add the batteries?

10:25

Speaker 1

Where do you do that? Where do you not need to do that? Love to talk a little bit about efficiencies with solar panels. You know, hopefully the tech's getting better and better, but it's still overall maybe not as efficient as we want, so. But yeah, tell us about the electric company. What kind of projects do you work on? And you've been there 22 plus years, right? Yeah.

10:44

Speaker 2

Eland Electric is a family owned company. We're on our third generation started in 1958. So we've been going pretty strong for quite a while. We employ on average between 80 and 100 electricians in the field at any one point in time. We are strictly an electrical construction company. So the only employees we have are electricians by trade. Even on our solar projects, we don't get laborers, we don't get temp help, we don't subcontract out solar panel installation companies. We do everything in house. We do everything ourselves. And it's all done by state licensed electricians. We're a union contractor, part of Local 158 here in Green Bay, Wisconsin. We're also a NECA contractor. NECA is the national Electrical Contractors Association. Yeah. Currently on our third generation ownership.

11:35

Speaker 1

And is it residential and commercial?

11:38

Speaker 2

On the electric construction side, we are mostly commercial and industrial. We don't get really too much involved in the residential wiring. You know, build new home building construction. We do some service work. We have emergency services that we offer for storm damages or you know, somebody cut a tree down and it knocked power out to their house. We really do get involved in the residential side on the solar piece. So that's. We do a ton of residential solar installations, but from electric construction, not so much.

12:08

Speaker 1

Got it now. Thank you. Okay, so let's talk solar followed up with batteries. You know, I've never really installed solar while I was a green building consultant. Did a lot of lead work and then help retrofit existing buildings. Here's some ECMs, right. Some energy conservation measures. Just, you know, you're right there at the forefront. You know, where do you source these? What's the efficiency? Is it, is it still 29% efficient on panels? Is it 40? I don't know. When you're looking at buying some panels today, like what's the layperson need to know?

12:38

Speaker 2

How we're doing with solar efficiency is really, I don't want to say a misnomer but it's a catchy term in our industry that does not always equate to the best panel or the most energy efficiency is simply the data behind. Efficiency is the size of the module divided by the wattage output. That's how we can based on standard test conditions. That's how all modules are tested in factories. That some module manufacturers will intentionally squeeze their module down as small as they possibly can, eliminating gaps in between cells, eliminating gaps around the frame. The smaller they can make their module, the technically higher the efficiency value gets to become. Some module manufacturers will intentionally increase the size of their module to give a little bit of space around the edge of the cell behind the glass and where the aluminum frame starts.

13:34

Speaker 2

So in climates like Florida, where they get a lot of rain and dirt accumulation, typically a very low tilt module, you'll get a lot of dirt that accumulates at the edge of the solar module frame. And if a company makes their module really short and doesn't leave a gap, now that dirt accumulation is actually shading some of the cells, reducing the energy output of the module, even though it might be a higher efficiency rated module. That's probably a way too technical answer there. But right now we're seeing Most modules around 22 to 23% efficient. NASA uses solar panels on satellites that are probably 50 to 60% efficient, but they use some extremely hazardous chemicals like arsenic. Not necessarily something we're going to see used in mass production.

14:23

Speaker 1

Careful with that one now. Okay, so there's some misnomers there, but solar is a good renewable and pricing's hopefully getting better. And then. So batteries,

right. I've been driving electric cars for 13 years. I've been wanting to maybe get a Tesla Powerwall in my house because I live in a neighborhood with a lot of trees and yeah, sometimes we lose power in the winter. But is it more for resiliency? Is it more to kind of lower your rate with your utility and run off the battery at night? I don't know. When do you recommend batteries for your installs?

15:00

Speaker 2

The answer is really all of the above. It is very geographically specific. Basically your utility company, Wisconsin, for example, has some pretty robust net metering rules. The net metering rules are essentially how the utilities are required to buy and credit your renewable energy in your home self generation. Some states don't have that. So a state like California, they really don't have monthly net billing types of programs. So if you lived in California and you put in a solar array, the moment you start pushing excess solar back onto the utility Grid, you get zero credit for it. No dollars, no cents, no energy, no kilowatt hours, zero credit in Wisconsin. If you lived in Wisconsin and put in the same system, the moment you start exporting energy onto the grid, you're literally just spinning your utility meter backwards. They're crediting you the energy.

15:56

Speaker 2

You're storing that excess daily solar production onto the utility grid and you just take it back from the utility grid at night. There's no dollar value assigned. You're not losing money by exporting during the day and consuming at night because of the monthly net billing. So batteries in Wisconsin, for example, are really just there for resiliency customers that really want backup power, emergency backup power. Wisconsin has a, you know, ton of rural areas and we get a lot of winter storms, spring storms, summer storms, fall storms. We get them over time. And batteries really do a good job of providing that resiliency emergency backup power without the noise and maintenance of a gas or fuel based generator.

16:41

Speaker 1

Got it.

16:42

Speaker 2

Tesla and some of the other, you know, powerwall enphase types of batteries, really, you really got a foothold in those states like California where customers are then using the battery to store excess daily production during the day and

then use it to discharge at night. So they're not donating energy to the utility company.

17:00

Speaker 1

Right. And we want to be in some net meter states maybe if we, if the utility needs what we have right on the renewables. I know eventually getting back to smart grid if we need to pull some from even car batteries. And it's fascinating. Okay, thank you for educating us on that, Jesse. Yeah. Anything else about projects you're working on today or your role? And then we'll try to predict the future next.

17:25

Speaker 2

Currently we truly anticipated a huge drop with the sunset of the tax credit. The 30% federal tax credit expired at the end of last year and nobody could predict the future. Nobody knew what was going to happen. We all expected that things would kind of really slow down, almost come to a screeching halt. But we've seen for the most part nothing skip a beat. The tax credit for commercial customers, which includes nonprofits as part of the Inflation Reduction act is still going on. So that we see we're seeing a huge uptick in our schools and government facilities. So K12 public education really starting to embrace and trying to get in on putting in some form of solar before they miss out on the tax credit. And we anticipated staying busy on the commercial sector.

18:17

Speaker 2

But what we didn't forecast was the residential just kept right on rolling. Some of that has to do locally with utility rates continuing to increase. So some of our local utility companies have, you know, almost doubled their utility rates in the last four years. So that it certainly is a driver of the payback or the ROI. We didn't see the ROI shift much with the tax credit going away. So we're working on a lot of commercial K12 public education Solar projects right now in Wisconsin and still a handful of residential. Nothing I would say is kind of groundbreaking as the Menasha Maplewood School. But I'm hoping to see a few more of those types of projects come down the pipeline.

19:01

Speaker 1

Yeah, I think decarbonization's here to stay. I think sometimes as the federal government ebbs and flows with federal mandates and incentives, their state, their city, and don't forget there's corporate. If a big customer's like, well, we're gonna do it because we want to do it well, let's go do it. So. So I think there's

still enough momentum there. You're right. Okay, what's next? What are you kind of excited about? What's coming around the corner in this green building movement?

19:27

Speaker 2

The one thing that I, I know is coming and I'm pretty excited about is bi directional car chargers. I think that's really going to gain a lot of traction in the residential market. First, we see a lot of people with electric cars that's not going away, that's not slowing down, especially with the current price of gas. We put in a lot of car chargers for customers and a lot of those customers also get solar because why not? It makes sense. Basically, I'm generating my own gasoline on my roof to fill my car or my truck or whatever I have. So solar and electric cars usually go pretty well hand in hand.

20:03

Speaker 2

And for those customers that want that resiliency, there's companies out there, Tesla's one Enphase is another one, that are really advancing this V2H and V2G, which stands for vehicle to home and vehicle to grid concept. So you have a solar system at home. You got a Tesla Cybertruck, Silverado ev, whatever you got, you can use the battery in your vehicle as your home resiliency battery. So you come home from work, there's no power in the house. You go to plug your car in. As long as you have some capacity left in your vehicle with the flip of a switch, your car is now powering up your entire home during a grid failure.

20:42

Speaker 1

That's amazing.

20:43

Speaker 2

And then, yeah, that's What I think is really going to be the next big thing in the residential market is that vehicle to home type of solar infrastructure.

20:53

Speaker 1

Yeah, I know the F150 Lightning started that way, but Tesla can do it, but they've held back on that, so you're right. Something will need to shift. I get it. If you know, then you got to go charge up somewhere and all that, but it's just fascinating. So you're right. That's a big part of the future. Well, Jesse, let's get to know you a little more in our rapid fire part of the interview. This is going great. I love your world. So what would you say is your specialty or gift?

21:15

Speaker 2

My gift is never giving up. I don't take no for answer. Doesn't matter what complexity project someone brings to us, there is always a way to bring it to fruition. I do not like roadblocks. They don't exist in my world. Speed bumps, maybe, but roadblocks? No. I will. I will spend countless hours and energy and effort to push my way through whatever might be a challenging. Just. I never give up attitude.

21:43

Speaker 1

Good. Love that grit. All right. Speed bumps versus roadblocks. That's a good one. Okay, so do you have any good habits, routines, anything that helps keep you on point?

21:53

Speaker 2

I stay busy. I try to stay as active as I can. I have a wife and three daughters, which certainly keep me busy. Involved in my youngest with sports. I coach her softball team on our apprenticeship committee. I'm also on the board of directors for the softball program. I don't get a lot of downtime, which, good or bad, it just always keeps me engaged. My brain only shuts off while I close my eyes. Laying in bed after that, there's. There's always something going on and just always staying engaged and busy.

22:26

Speaker 1

Sounds like go mode. But probably being present with the people you're with and just. All right, we're gonna get. I'm gonna. I'm gonna make every waking hour productive. That's what I'm hearing. So.

22:36

Speaker 2

Yep.

22:36

Speaker 1

I like that attitude.

22:38

Speaker 2

Make the. Make the hay while the sun shines.

22:40

Speaker 1

That's right. That's right. So I like to ask my guests about bucket lists. Not everybody has a bucket list. Some. It's adventure travel. Maybe write a book. I don't know. What are a couple things you put on the bucket list?

22:52

Speaker 2

Honestly, if I had anything in my bucket list, it would probably be to see my children grow up to be successful individuals and have successful careers.

23:02

Speaker 1

I love it.

23:03

Speaker 2

Proud. It's kind of a cheesy item on the bucket list. But honestly, that's, it's your purpose, you know.

23:09

Speaker 1

You know, I, I have three boys. One just graduated from high school and the other one's turning 15. The other one is turning 13. So just. Hey, man, at first I couldn't imagine three girls. I mean, three boys.

23:23

Speaker 2

Different, different.

23:24

Speaker 1

So.

23:26

Speaker 2

And are similar in age 2016.

23:28

Speaker 1

And very cool. Now, man, that's your purpose for this important season. So thanks for sharing. Is there a book you'd recommend to our listeners? Doesn't

have to be about buildings. If not a book, a documentary or a podcast. Any pro tips here? Hey, check this out.

23:45

Speaker 2

The IRS tax code is always an interesting read.

23:49

Speaker 1

All right, That's a first for the podcast. I'm sure you're saying section 179D and cost segregation, but. Okay, yeah, that's funny.

23:58

Speaker 2

I spend a lot of my day researching things like that in between working on jobs, whether it's the tax code, incentives, utility rates and regulations. Wisconsin is a regulated market and we actually have, we have more utility companies in the state of Wisconsin than we have counties. We have 108, I believe is the count utility companies within the state of Wisconsin. So everybody gets to do their own little different things. So I don't necessarily have a lot of time to read books. It's usually staying up to date with that. My electrical license, the national electrical code. But I really do need to get back into reading. I used to love reading novels were kind of my thing.

24:36

Speaker 1

Yeah. So there's the author. It's Brandon Sanderson, I think my sister in law, she loves. And just all kinds of great authors and books too, man. Now thanks for sharing. And that's the first IRS tax code. My father in law would appreciate you. He worked 36 years at the IRS. He was an executive and he managed 3,000 people. And you're right. But I think the takeaway for our listeners is, you know, there's still money out there for energy efficiency, for renewables, for going green. You just got to work a little harder. It's there. That's my takeaway.

25:12

Speaker 2

Yeah, there's certainly stuff out there. And even if and when that ever does go away, you know, there's all kinds of other incentives. The climate, you know, change, prevention, the decarbonization, controlling your own utility bill. There's, there's a lot of reasons why it makes sense.

25:29

Speaker 1

It makes good business sense. All right, so as we wind down here, two final questions. You know, as you look Back on your career, is there anything you wish you've learned earlier? Any career advice you wish someone had gave you earlier in your career?

25:42

Speaker 2

I don't know that I feel like I missed any advice because I was a literal sponge when I was young and absorbed every possible thing I could. One of the best pieces of advices that I got that would have really hindered my development if I didn't take it or have it would have been never stop learning. Your journey to the educational journey never stops. There's always something new. There's always something to learn, and I learned that early on. And thankfully, I had some great mentors that really pushed and promoted education, whether it was taking in night class, reading a book, reading up on something you're interested in. Just always go absorb and learn as much as you possibly can.

26:22

Speaker 1

Yeah, never stop learning. I love that. And, and I can tell even though you didn't say it, I bet you also love to then teach, right? And so one of the things I do, Jesse, for my podcast guests is I have these organic cotton T shirts that say, teach everything you know, that's our motto here on the podcast. So I'll get your address later. We'll get you a T shirt, man. Teach everything you know, which forces you to go Learn a bunch and then make sure you don't just hold it back. You teach everything you know.

26:50

Speaker 2

You're pretty good reader of people. I do, in fact, teach night class for our other apprentice. Nice students within the union. So I teach a few different night classes for our apprenticeship program.

27:00

Speaker 1

Man, that's fantastic. Yeah, my dad was a journeyman carpenter, and so I, when we lived in New York for a little bit. So definitely appreciate the union, the training, the apprenticeship. Much better word than, you know, that's what it is, apprenticeship. So, okay, last thing as we're wrapping up, let's say some of the listings, man, they're getting excited about your story and, you know, maybe they're forging an electrical career. Maybe they want to get into renewables. Just any words of encouragement for someone that's just now jumping in.

27:28

Speaker 2

Being an electrician, first and foremost, if you don't have the desire to become a true electrician, you're just going to end up what we call slinging panels. You're just going to be boots on the roof, taking panels off of a pallet on the ground, hauling them up a ladder and slapping them on some racking on the roof. To me, the really cool thing about what we do on a Day to day basis is we get to be there day one through the very first minute on the job to the last minute sweeping up that last pile of dust in the basement. As electricians, we do everything from start to finish. So that would be my best advice is be open to being an electrician that maybe specializes in solar or renewable energy. Take as many classes as you can.

28:13

Speaker 2

There's a lot of great resources online. There's also some not so great ones. There's some good corners of the web and some dark corners of the web. But reach out to some local organizations, whether it's your local union hall, your local chamber of commerce, just try to start figuring out your technical college. A lot of the local technical colleges now have some form of renewable energy courses and trades types. Technical colleges are very much in favor of advancing that and working towards that. So learn as much as you can. My best advice, and it's just biased because I'm an electrician, but be open to being an electrician because that's really where you can have an enjoyable career that you're not spending 40 hours a week just hauling 50 pound modules up and down the ladder all day long.

29:00

Speaker 1

Wow, a lot of wisdom here, man. Teresa was right. I'll make sure and you follow up too when we launch your podcast. Just make sure she gets a copy. I just can tell you're a good person. You've got a lot of passion about the work you do as a trade, as an important craft, but also just the green building side of it. So thanks for being on. Really appreciate it. You know, everybody make sure you connect on LinkedIn with Jesse. If you're up that way in Wisconsin, make sure you check out Elon Electric. And just Jesse, want to say thanks for being on the podcast today. This was great.

29:31

Speaker 2

No, I appreciate it, Charlie. Thank you very much.

29:34

Speaker 1

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