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***TAG Infrastructure Talks* Podcast: Exploring Challenges and Opportunities Within the EV Infrastructure Sector With Kerri Stewart**

**Hosts: Alan Poole**

**Guest: Kerri Stewart**

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**Alan Poole:**

Welcome to another episode of *TAG Infrastructure Talks*. I'm your host, Alan Poole. I'm a partner at Troutman Pepper and I'm the chair of the TAG Infrastructure Society. We have a very exciting episode focusing on EV charging infrastructure today. My guest is Kerri Stewart, Chief Strategy Officer of Miller Electric. Miller Electric is at the forefront of the convergence of IT energy and facilities. Kerri, welcome.

**Kerri Stewart:**

Hi. Thank you, Alan for having me.

**Alan:**

Absolutely. It's a pleasure to have you here. Let's get started by focusing on you and your company. Tell us how you got to where you are and tell us about Miller Electric.

**Kerri:**

Well, I came from many decades working in city government and working for municipally owned utilities, and so I came into the electrical and technology contracting world via a government space. I've been with Miller a little over three years now. Miller Electric is an almost 100-year-old family owned electrical and technology contractor based in Jacksonville, Florida, but we have 18 offices around the country, but primarily in the greater Southeast. As you stated, I am the chief strategy officer for Miller Electric, but recently was also named president of Miller EV Solutions. It's a group that we've spun up within the legacy company to act more like a startup, to be more nimble as this market continues to evolve.

**Alan:**

We were talking before this episode and you had a ribbon cutting ceremony. I'd love to hear a little bit about that exciting facility before we get into the think piece part of the episode.

**Kerri:**

Absolutely. I love talking about it, so thank you for asking. We did cut a ribbon on what we have named the Electric Vehicle Innovation Design Center. It is at our headquarters in Jacksonville, Florida, and it is a collection of multiple manufacturers for EV charging solutions. So we have 13 passenger vehicle chargings, all different manufacturers, different softwares managing those charging units. They are a mixture of level two and level three charging. That's the slow trickle

charging as well as the fast charging phase two hopefully coming in spring of 2024. We've laid the infrastructure for it. We've made it future ready to bring in inductive charging for pull through charging for transit authority, our local transit authority, as well as medium and heavy duty trucking. The really cool piece about this innovation and design center though is the final piece which will come in phase two, and it's a solar canopy that will be capturing solar energy, putting it into a battery. We'll also have a hydrogen fuel cell that will provide resiliency for the site. All of this will be managed by a microgrid solution.

**Alan:**

That sounds really exciting. And the idea of future-proofing such a new type of technology sounds very hard and I'm impressed you guys are managing to do it. So for your clients, you try to put together everything necessary to install charging infrastructure. So from that role, based on our prior conversations, it seems to me like you have your thumb on some of the biggest issues facing the development of the EV charging market. Is that fair to say?

**Kerri:**

I think it's incredibly fair to say we like to think because we know we are closest to the customer, and that customer could be a multifamily property owner. That customer could be a commercial real estate owner, that this customer could be a fleet manager or a large corporation that is looking to attract retain employees, customers, or tenants. So there are multiple reasons that people are getting into EV charging and the solutions can get very complex very quickly. So because we have been working with these customers, as I said earlier, almost 95 years, we're just starting to meet the fleet managers in these companies. Or we're meeting customers that have been customers of Miller for 40 or 50 years and they're thinking about getting into the EV charging game for multiple different reasons. So we start with that consultative approach. They know us, they trust us, we work through what is their reason for wanting to install EV charging at their site, and then we work on what would be the best solution for them, and then it gets much more complex from there.

**Alan:**

I want to touch on something you mentioned earlier. You said you're just now starting to talk to the fleet managers, and I think that's touching on one of the ways that you solve the complexity of the EV charging installation projects, which I think is widening the stakeholders and the folks that you have to talk to to make sure things that go well. Can you tell us a little bit more about that?

**Kerri:**

Sure. The fleet managers have always worried about energy and fuel consumption, and they have either refueling assets on their site or they have a network of refueling for on route charging or on route fueling. And so this is a very new concept for them. They're being approached by manufacturers of these vehicles, or their board of directors is telling them that there are certain resiliency or sustainability goals that need to be achieved, and the low hanging fruit seems to be converting your fleet to electric or some alternative fuel source. And so that's about all anyone knows. And so they may purchase the trucks, they may purchase the medium

duty buses, they may purchase autonomous vehicles to move goods around their facility, and the vehicles arrive and there's no thought been put into how are we going to charge? Because the facility managers are the folks that we normally work with and have for a hundred years. They are worried about the consumption and the energy envelope of the building. Never had to think about fueling the buses or the fleets or autonomous vehicles that are typically diesel powered or fossil fuel powered for sure. And so yes, the facility managers are now becoming very good friends with the fleet managers and sometimes it is, it's in the wrong order. The vehicles have been purchased either because there were tax incentives or the fleet manager was asked to look into it. The ROI looked fantastic, didn't take charging into the equation, and it's a significant investment.

**Alan:**

It's interesting you bring up folks kind of getting ahead of the ball. One of the things we talked about is the big issue with this ecosystem is many of the players are trying to move as fast as possible, getting ahead of standards and regulations that might make things more standard. What are some of the issues that that's causing?

**Kerri:**

Well, I think you nailed it, right? The ecosystem itself is getting enormous. We started out several years ago, decade ago with Elon Musk building a charging network so that he could sell cars. And as automobile manufacturers have followed suit and continued or started to expand their offerings from fossil fuel to electric vehicles, they hadn't thought about charging. So there are separate industries being stood up, started up around EV charging EV vehicles, the manufacturing of them, the software that manages them, the devices that are needed between the grid and the site. You name it, there are folks out there developing it, and a lot of it's startup companies. A lot of it's very big historically technology forward, companies like Schneider, international companies that are really thinking about where they live in this ecosystem. And because there's no standardization, there's no real regulation that is consistent across the United States or North America, everybody's trying to get in the game and that makes those solutions even more difficult to land on for customers. It

**Alan:**

Sounds like that'll be a real policy win if it works out. The issues with chargers has to do with that can become a barrier to the market, right? Sometimes you might not have a charger, you're worried you don't have a charger that might cause you not to get an ev. But even beyond that, are we still seeing issues where maybe you find a charger app is saying a charger is here but it's not working, or there's some unknown compatibility issue?

**Kerri:**

It's a significant issue, and I think it's a significant issue across the world, not just in the United States, not just in North America. For instance, Georgia, let's take Georgia where we're today. There are roughly 30,000 passenger vehicles, electric vehicles being driven around the state of Georgia. There are only about 1300 publicly available charging stations. Wow. And of those, the bulk of those are level two. That's the slow charging that you plug in at Starbucks or you plug in

at work. And so not super reliable if you need to charge in a pinch and it doesn't give you the confidence you need to drive on a long road trip. And in a state like Georgia or Florida where I'm from, there's a lot of miles that can be traveled before you see an exit. And so there is still a good deal of range anxiety and a good deal of frustration for those that have made the choice to go EV that still have that range anxiety because of the lack of maintenance on the current infrastructure and just the lack of infrastructure out there, especially on the DC fast charging side.

**Alan:**

I was surprised when you told me earlier that we're already looking at aging issues with what at a higher level is a emerging technology, but are there some initiatives to try and address aging charging infrastructure?

**Kerri:**

I think from the public sector, absolutely. In the Inflation Reduction Act and several of the other bills that were put forward by President Biden and passed by Congress, I believe there's a hundred million dollars for shaping up the current infrastructure. And there are multiple billions of dollars to fill in the gaps with DC fast charging in these corridors where they're really needed. So there's funding set aside to fix what's out there now and separate funding to fill in the gaps. On the private sector side, there's a race to fill in those gaps and to be the first to market, and they are getting out there very quickly. A lot of our customers will, for instance, we talked about this earlier, they will go to a potential site host offer to lease 10 to 12 parking spaces, and they will build a charging island in the middle of a corporate parking lot or in the middle of a university parking lot or in the middle of any sort of commercial real estate where there's good traffic and flow through that.

**Kerri:**

There are a good number of EV owners in the area, and they do the math and they know that they can make a return on their investment if they get that piece of real estate before whoever is going to be industrious enough to get out there. And so the private sector is trying to fill in the gap and to get ahead of these, they will be publicly available, publicly financed charging stations. And then for those that have this aging infrastructure, they are looking more and more to companies like Miller EV solutions just to take over their network. And I'll use a national bank chain as an example, been our customer 40, 50 years. We work in their installations all around the United States, and they're not in the EV charging business, but 10 years ago they had Electrify America came through. Your listeners may remember Electrify America, but it was a funding from a settlement with Volkswagen that allowed for the installation of EV charging all around the country, a municipality, a company. All they had to do was apply for it and they would get an EV charging in their parking lots. Level two, it was slow 10 years ago, and it's either slow or not working now. And so instead of the amenity that they had envisioned it to be, they're now frustrating customers, tenants, and employees because of a charging interaction that they have, not the kind of charging they like to do in the bank. Sure.

**Alan:**

Yeah. Can you speak briefly about the funding available to close the gap with public funding maybe to areas that are not as easy to get an ROI?

**Kerri:**

So what we see in Florida is \$198 million over five years that's coming to fill in those gaps, especially in rural areas or areas where it doesn't make sense for a for-profit company to put fast charging. So think about equity in these rural areas in urban areas where we want clean air, we want to promote EVs, and there just simply is no charging infrastructure. So that's where the federal government's going to fill in the gap. I believe Georgia has \$129 million coming to them over the next five years, and the federal government has identified alternative fuel corridors in each state. And so to get the federal funding, the charging has to be within 50 miles of another fast charging. It needs to be publicly available. It needs to be at least one mile from an alternative fuel corridor. It needs to be for at least five years, 97% uptime or else there are punitive damages if it doesn't work, has to be fast charging available to all vehicles, and it has to have at least four ports available. So the federal government is starting to put some standardization into the system through incentive, not actually through regulation. But if you think about it, that's the way that it's moving is in order to get these federal funds via incentive, this is how we think the customer experience should be. And I think you'll see the private sector following suit.

**Alan:**

Do we have a sense for how well or how far that money's going to go in terms of filling the gaps we want to fill?

**Kerri:**

The thought always is, I believe, with federal, state and local funding is to incent a market to get it over.

**Alan:**

That's a great point.

**Kerri:**

And so I don't think it's sufficient for where we want to be in 2030 and the goals that now President Biden has set forth, but I do think it is enough to really jumpstart the market to get EV adoption where it needs to be that the private sector will come in and fill those gaps.

**Alan:**

That's a good point. I'm glad you raised that. I was mixing up my broadband funding knowledge with this where they're trying to connect all of America. But yeah, so this is about market creation and we're trying to reduce hurdles like range anxiety and the feasibility of long road

trips. Sure. So the idea that somebody's going to be selling this electricity and who's going to sell that has been a really tricky issue because that electricity can be thought of in two ways. One, a regulated product or service sold by regulated utilities or a substitute for gas that if this market goes where we think it's going to go, gas stations are going to have a revenue problem. So let's talk a bit about this issue and how we're seeing some states deal with that.

**Kerri:**

It is an absolute issue. And on a state by state basis, you look at every state is looking at this differently and some states are going straight to regulation. State of California is a perfect example. They've been leading, taking their cues from the EU and putting in very strict policies around EV adoption, around where EV charging needs to go, who can be in the EV charging business, how they work with the publicly regulated utilities in the state of California. And there are others states that simply have their head in the sand because it's not just the convenience stores or the gas stations that are potentially losing revenue. Almost every state in the United States as well as the U-S-D-O-T count on gas tax dollars to pave our roads, to build our infrastructure. And for states like Florida, I'll go back to Florida again, where we don't have a state income tax.

**Kerri:**

We depend heavily on the gas tax to build our roads for us and people that are coming into the state to visit. We're a tourism state, so we are a net positive on people flowing in and gassing up. So that's how we build our roads, but we simply aren't talking about what we're going to do to replace that as more and more people adopt. So I think marketplaces are going to shift because of the adoption, because of this notion of who sells energy, who controls it, who regulates it, how are the rates set, how are the rates constructed, how is the pricing set and how do we all work together in this new economy? How do the regulators regulate? How does the marketplace do what the market wants to do? And how do we all end up driving an EV by 2030?

**Alan:**

Do you have any thoughts on in terms of Georgia policy or any other particular examples of things that are done really well and things that could be done better?

**Kerri:**

I think two things. You and I talked about one earlier today, and it's this where you've all made a compromise at the state level between Georgia power and the convenience stores, and nobody's super happy with it, but I know when I read it, I thought, this is an incredible way to say to the private sector, okay, put up or shut up, I like it. Or you've got 18 months to produce an alternative solution to this geographic area where Georgia Power wants to go. And if you don't, Georgia Power is going to go in your place because charging is clearly needed in this geographic area. It's been identified. Everybody agrees we need charging in this geographic area. We're going to give the private sector, the marketplace a place to do it or time to do it. And if they can't or won't, Georgia power will step in. And I think that's an incredible compromise. I think it was either a loophole, a grandfather, I don't know what we'd call it, but they've been out there doing this for a very long time. And I think it was a compromise. I would have to think,



**Alan:**

Well, I think that's another trend we see is one of the benefits of getting out there is the saying would be the horse is out of the barn, right? We're already out here. It's a lot harder for regulators to take something away that's already doing very well versus regulating before people are relying on it, right? Well, we can't talk about anything electric without getting to some of the lead time and supply chain issues that are affecting all advanced industries right now. We, in terms of transmission and generation of electricity, I think all states are feeling a crunch. What are the current timelines on, for example, transformers and substations, which sometimes you got to have these built to make EV charging work.

**Kerri:**

I think it varies from state to state and utility to utility. And if the utility is providing the transformer, which most companies hope that the utility will provide the transformer and or the substation, we're seeing up to two years lead time on a transformer. And for a substation, that's a significant planning effort as well as an issue with getting all of the parts and pieces that you need to configure for a substation. So getting it permitted, getting it engineered, designed, and then getting all of the probably custom pieces that you need for it up to five years if it is not already in the utilities. Long-term plan

**Alan:**

And utilities typically plan out three years in advance to try and forecast energy. So making a big change to that can sometimes be an uphill battle.

**Kerri:**

And most utilities have a 10 year generation plan. So getting away from transmission and looking back into the generation side of the utility, they plan in 10 year increments how much energy they're going to need at their peak day of the year. And so they plan for that so that this happened very long ago so that the United States doesn't experience blackouts or brownouts anymore. The grid works together all across the country except in Texas, and they're just different. And the utilities work together. Private utilities, municipal utilities, they all work together to plan for generation for what would be the highest day of the year for any one of them, so that there's always enough energy. But this EV market is coming on so fast. A for instance was listening to someone from Amazon speak a few weeks ago. Any one of their fleet conversions on one site could have a need for three to 10 megawatts.

**Kerri:**

It's a big range, three to 10 megawatts to charge their fleets depending on the size of the facility, depending on when they're all charging. That's a lot of energy for one site. So it's coming really fast. And I think that again gets to us being close to the customer and trying to work with utilities. As soon as we get brought in to consult or we know our customer's going to purchase vehicles or they have a plan, we try to get with utilities immediately, not only for our customer to understand what it's going to cost, how long it's going to take for them to do what it is they want

to do, but to make sure that even if they decide not to go, the utility is aware of that for their planning.

**Alan:**

Sometimes the customer's not willing to wait and wants to do something if the utility can't perform in the time they want to. And we're starting to see more and more talks about micro grids and generating on site. Can you tell us a little bit about what you're seeing in that space?

**Kerri:**

Sure. Well, we are going to have a micro grid in our electric vehicle innovation design center in our parking lot in Jacksonville, Florida. And that was born out of frustration by a transit customer that we have that had installed several years ago, a solar array over their maintenance facility. This solar array over generated energy for what the facility actually used. It was an open maintenance facility for transit buses, so it didn't use a lot of energy. And so this enormous facility could support a lot of solar on its rooftop, therefore generating a lot of energy. Utilities do not have to purchase energy back from any of their customers. It is on a case by case basis. They work with residential and businesses alike to work on those solar conversions to figure out how much energy that site needs and consumes and to right size those solar installations.

**Kerri:**

Well, many times for resiliency and sustainability goals, the solar arrays get built and they over generate, and that becomes stranded energy because the utility is not going to purchase that energy back. And if there's not enough battery storage to manage that energy, that energy just gets lost. It, it's stranded. And so for this particular customer, they were in need of an upgrade from the utility for their conversion of their bus fleet to electric. They're currently CNG moving to electric. And so bringing the utility together with the transit authority to say, what could a workable solution be? The utility solution is five years in the making, very costly for the utility, and therefore all of their rate payers for one customer. So what sort of cost share should be allowed? Does the utility, the transit authorities board didn't want to wait five years to meet their carbon goals?

**Kerri:**

So a solution that we're working on is exactly what you talked about, and it's a microgrid solution that captures that energy from that maintenance facility that's being pulled in from the sun using a battery solution and a hydrogen powered generator for resiliency and backup with a microgrid solution, managing energy from the grid, energy from solar energy, from hydrogen energy stored in the batteries, and ultimately energy that's stored on the bus batteries as well. It will be able to manage all of that at any given time based on weather, based on where the cheapest power powers coming from, which obviously would always be the sun unless the sun is not out. And that can happen for multiple days in a lot of these southern states and especially up in the northeast as well when you have snow days. So this solution is a power plant. We're building a small power plant on this local transit authorities site to get them the energy they need, the sustainability and resiliency they need in their system so that we can provide clean public transit to the area that this transit agency serves.



**Alan:**

As we start to close the episode, I wanted to get your thoughts on what is the next biggest issue to tackle beyond what we're already working on now?

**Kerri:**

I think the biggest issue that we are facing in the United States when it comes to EV charging and infrastructure is that underlying grid infrastructure. I don't think there is a real meeting of the mines between manufacturers and the need for equipment and gear on the utility side of the meter as well as on the customer side of the meter. That utility sits in the middle there. The unpredictability of the adoption and where it's going to happen makes it very difficult for an already slow moving capital intensive industry to catch up. And we said at the top of this podcast that the US government believes that the US grid will need 60% more capacity by 2030. That's an enormous amount of infrastructure that has to go into the ground. And so the federal government and all of this EV charging spending, they have put money into these bills, into this legislation for utilities to really start thinking about this and getting hot on it as well as financial mechanisms for them to be able to not have to rate base these investments that they have to make into the grid. And so I think that's really going to be our biggest challenge as a country because it's not being set at a national level. It's being incented at a national level, not being regulated at a national level. It's being regulated by state and local PUCs.

**Kerri:**

Yeah, there is a difference between incentive regulation and direct regulation. Well, I'll be very excited to see how that develops. I know we recently put out a think piece on, we seem to be at a point where we have the best chance to do significant transmission upgrades, and hopefully that gets done. And I think not only of EVs, but we're also talking about data centers as well. I mean, the amount of power we're going to start seeing due to AI is just astronomical.

**Kerri:**

It's hard to fathom.

**Alan:**

It is. Yeah. I mean, it's just unbelievable. And then I just think the data centers EVs, how are we going to get there? And I really appreciate you spending some time with us to give your thoughts on how that might happen.

**Kerri:**

Thank you for having me.

**Alan:**

Well, this was just great. Look forward to working with you more, and hopefully we can find ways to solve all these problems. That's what TAG is here for. That concludes another excellent

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episode of *TAG Infrastructure*. We hope you enjoyed it. Make sure you're subscribed to both [Troutman Pepper](#) and [Tech Association of Georgia](#) on LinkedIn to make sure that you're staying up to date on all of our new episodes. You can also subscribe to this podcast on your podcast listening application of choice. See you next time.

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