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NICK VORIS INTERVIEW

Hi, welcome to Grid Talk. Today we have with us, Nick Voris, who's Evergy's Senior Manager of Electrification based here in Kansas City, Missouri.

Q: Hi, Nick. How are you?

A: Good morning. I'm doing great. How about yourself?

Q: Good, good. I'm very excited to have you on to talk about all things electric vehicles especially in light of the coming expenditure in investment from the Infrastructure Investment and Jobs Act and the Inflation Reduction Act. Lot of words there but it adds up to \$7.5 billion dollars for building out electrification corridors for electric vehicles across America. Is that going to get the entire job done or is that going to get us well down the road?

A: I would say that it's going to unlock nationwide travel with respect to EVs so at the very least, it is going to accomplish that job because the National EV Infrastructure Program which is nested within the IIJA as we lovingly refer to it as, is intent

on creating charging sites every 50 miles along our major highway corridors coast-to-coast.

Q: So, Nick, I've been privy to the fact because I live in Kansas City that Evergy has been very aggressive in early adopting EV charging deployments. What do you think that has gained you as a company where you sit now with this avalanche of money about to descend on this region?

A: Yeah, so Kansas City, the Kansas City metro area, greater Kansas City metro area is a great place to own an EV, not the least of which because we do have a rather robust network of community; I'll call them community charging stations, Level 2 Charging Stations and these stations provide us with insight about where and when charging is occurring. They shape our opinions and our advice to the federal government when they ask us, "What are some of the requirements that we should bake into some of these IIJA subprograms" so we are really happy with our network and look forward to seeing it expand as the community charging grant programs take hold over say, the next 5-6 years.

Q: So, in Kansas City you have about 1,000 EV charging stations, is that correct?

A: That's correct.

Q: And while utilization might have lagged early-on, I think you've shared with me that the rate of energy flowing through them is growing by about 50% per year.

A: Yes, that is correct.

Q: What kind of strains is that starting to put on your system or do you take it all in stride?

A: Yeah, not yet. You know the starting point, right, back in 2014 is zero so you're starting from a low bottom and you're growing from there so even through it's 50% year-over-year, we still are not at a level that is straining the supporting infrastructure for those stations; it's certainly something that we have our eyes on. We have the capability technically to do demand response on those stations and if we get to the point where that makes sense, we will implement a demand response program that for example, might decrease the charging intensity of those stations over a few hour peak period from say 7 kilowatts to 3½ kilowatts. Again, we have the capability to do that technically but we have not needed to do that.

Q: So, in terms of the customer-facing side of that, do you think you might come out with a program where you say charge your car in the evening or in the morning, and you'll get half the price?

A: Yeah, so we already have time-of-use rates as they're known in the residential space in both of the states where we operate, and we are continually looking at other rate designs that accomplish that very goal which is to incentivize folks to charge off-peak. Beyond time-of-use rates, utilities are starting to-I will characterize it as dabble - in other programs that put the utility in a more active role in controlling charging of folks' electric vehicles, people who are interested in signing up for those programs and those programs generally take the form of the utility will incentivize the EV owner in exchange for a greater control over when that car charges.

Q: Okay. We're flipping around a little bit here because everything you're saying is so exciting to me. I've got all my brain cells flashing, so I want to ask you, get back to what you said a few minutes ago that you think the \$7.5 billion dollars will unlock national travel. A.give us a timeframe on how long you think it will take to intelligently to spend that \$7.5 billion. Is it going to be a year; 10 years? And, B: what does national travel mean to you? Do you mean Kansas City residents will have no qualms about taking their EVs to Chicago, Dallas, St. Louis or Denver?

A: Yes, I would say beginning with the latter part of your question, exactly that. If...once we get to the point that we have

highway corridor stations every 50 miles, it really reduces or dare I say, eliminates range anxiety because you have so many charging options that do not exist right now so if you can travel Interstate with an EV. It's particularly easy with Tesla just for unique reasons; it's because of their supercharger network but with non-Tesla EVs, you can travel coast-to-coast at this point but you have to have a little bit of a pioneer spirit to do so because your charging options are so few.

Q: So, I have a good friend who has a Nissan Leaf in part because of encouragement by your company which had promotions promoting those. Would even a Leaf owner be able to have that kind of intercity transport available to them?

A: Technically, yes, I mean, in a car that has let's say 200 miles of range on paper at Interstate speed (and this is a whole other kind of conversation), but at Interstate speed that car might be more like 150 miles of range so if you have charging stations every 50 miles, you can Interstate travel with a Nissan Leaf.

Q: Okay. I'll remind you of my A part of my question; how long with this buildout take?

A: And it's a great question. The funding is going to go to the states over the next five years, I believe it's calendar year 2022 through 2026. The spend is not going to be exactly in

alignment with that funding nor does it need to be by law. It's not going to be 'use it or lose it' by the end of 2026. And that is important because among other complexities in getting this money spent, is supply chain. These stations, these highway corridor stations are going to require some fairly sizeable transformers and other electrical components, in addition to the charging stations themselves, right; all of which have their own supply chain challenges so I would expect in the Midwest and I can only speak for the territory that I'm in, I would be surprised if we start seeing these stations before on the ground, operable, before...I'm going to say early 2024; late 2023 timeframe. And then from there, just look forward five years and I think that's your build.

Q: Well, late 2023 is really not that far; it's pretty much a year from now.

A: Yeah. I'm much more comfortable with my early 2024 than I am with late 2023; I try to be optimistic here.

Q: Okay. Let's get into the weeds a little bit now on Evergy's philosophy and approach to this. Early on because you were an early adopter, you probably wanted to do it your way and just learn as much as you could, so you had utility-owned charging stations deployed across your service territory. Now you're taking an approach in part because of regulatory encouragement

particularly in Kansas of having third parties come and develop it, these sites, and as you and I have chatted in the past, some of this legislation is fairly complicated; a thousand pages to wade through to get into the nitty-gritty. What role do you see at Evergy encouraging deployment of these charging stations particularly in your service territory where you work with a third party and help them hand and glove, and how does that evolve your sense of Evergy's mission?

A: Yeah, so there's at least a couple of ways that we can support this buildout with this federal money by non-utility entities and the first is to offer rebates that help them achieve their 20% local match. It is required by the program. The grant funding covers 80% and then they have to come up with the other 20% from other sources, and in Kansas we're going to be able to do that and offer that to the developers who are building these highway corridor stations. The second thing we can do is we can work with the state, the Kansas Department of Transportation and with the developers to help hone in on what are the locations that kind of meet the checklist of requirements required by the funding but also minimize the amount of investment that is required on the utility-side of the meter, right, because the developers are going to or could be responsible for at least a portion of that as part of their total cost so everybody wins if

we can site these in locations where the utility-side investment is minimized.

Q: Do you have a list of third-party players that are chomping at the bit to get at this? How robust is business engagement going on this front?

A: Yeah, we know a few of them just from our interactions with them prior to the law being passed. I would say at this point the Kansas and Missouri Departments of Transportation probably have a much better list because that is who these developers have been engaged with to date. They're going to come knocking when the state DOTs issue their requests for proposals for these sites. Then I suspect we will start engaging with those developers to help them craft their grant applications but heretofore we have not been engaged with them.

Q: As somebody that watches this very closely, I'm sure you know about all of the auto manufacturers that have made pronouncements that they're going to stop producing fossil fuel-powered cars at certain points. Given the nature of the auto fleet, it will take decades possibly to cycle beyond that, but how fast do you see EV deployments coming in the next few years? Can you give us an idea in Kansas City and nationally perhaps? I mean, would you be surprised to see half of the vehicles on the road, EV by year X, and what would that year be?

A: Yeah, so I would say this; I would say that EV adoption for probably the rest of this decade is going to be very region-specific. One of the interesting statistics that's out there right now is that 60% of the EVs that have been sold to date have gone to five states, and they are...I'm going to challenge myself here...Washington, California, Texas, New York, and Florida, so you could very easily see a scenario where in from a national perspective, we've reached 50% EV sales. But in Kansas and Missouri, we are quite shy of 50%. That's a scenario that I think is fairly likely. Right now, we are at 3% as an example of new car sales are EVs...you look at California, I think that California's 15% so there's really a lumpiness based on a variety of reasons.

Q: As someone who comes from a smalltown Missouri; Walnut Grove, which you say is population 504; 504, I assume you know them down to the last four, what's the attitude of Walnut Grove, Missouri towards EVs and what will it take to change it?

A: Yeah, so I would say that Walnut Grove; gosh I don't want to speak for my hometown but I think I'm going to speak for my hometown, I think that their opinion of EVs is probably pretty indicative of towns kind of in that demographic. They are about 25 minutes from the nearest town with like a Walmart, right, so you got to travel to get into what we call town, which is

Springfield, Missouri. So, EVs are not...I would say they're an increasingly a good fit for people in Walnut Grove but it's not top of mind for them. What's it's going to take is...

Q: I bet the Ford F150 will be popular down there.

A: Yeah, you know, so I grew up on a beef farm and spent 18+ years seeing firsthand how trucks are used on the farm and I don't know if I'm being overly pessimistic but my take on that is that I think that full-sized trucks are probably...I think it's going to be the better part of 2030 before they are a replacement for like a diesel pickup.

Q: It just occurs to me that I could see a trend and I wonder if you can see it, too, where EV adoption and deployment and charging infrastructure adoption is going to be something like Internet access, highspeed Internet access where it came first to the states you mentioned which are kind of leaning into technology and then it became an issue of more rural states or less densely populated states thinking they were being passed by, by modernity and they wanted it for deployment. Do you see that evolving in maybe 5-6 years in projects here where people start crying out and saying, "What about Walnut Grove? Let's get more charging down in there and spur EV adoption."

A: Yeah, I can tell you my experience over the past couple of years since I've been in this role particularly with Kansas, is

that the posture of our regulator specifically has become much more favorable towards EVs. I think that the right people in Kansas, the people who can make a difference, the decision makers are seeing that. We just had the pronouncement of a Panasonic battery factory that is coming in there in De Soto, Kansas and that was the culmination of a huge effort from policy-to-private industry involving a diverse set of stakeholders who were all convinced that EVs are the future, we should get on this bus and help make sure that the benefits of EVs accrue to Kansans.

Q: I'm going to get a bit wonky with you but a while ago there was talk about utilities using EVs as far-flung energy storage opportunities where you dispatch power out of EVs. Is Evergy still looking at that and when is that going to be ready for primetime?

A: We are. Okay, so what we're talking about really is vehicle-to-grid where you take the energy stored in the vehicle's battery and export it to the grid. We think that over the near-term and I'll define near-term as the next five years or so. Probably the best application for that is school busses. There are a number of technical standards and basics; governance, tariffs, things like that that need to fall into place before that is really achievable and in our service territory and we are certainly working - a broad group across Evergy - is working to understand

kind of what are the waypoints, what are the hurdles that we have to get over to make the V2G a reality but again I would say, it's going to begin with school busses. People like to talk about lightings and passenger vehicles setting in their homes exporting to the grid. I think we're several years away from that, if it ever becomes a thing, because there's the technical side of that. I think it's one of those classical situations where from a technical perspective, we're going to be able to do it. Are customers going to want to do it? Are they going to want to take their car and let the utility discharge the battery 20 times a year or whatever?

Q: As you know, Kansas City is building a new airport; it's opening next year. Could you see people plug in their EVs when they take a flight for 10 days and have their storage be charged, something that Evergy buys and possibly pays for their parking at the airport? Those kinds of scenarios are possible. Customers might like that; free parking at the airport.

A: Yeah, I think that maybe those niche opportunities like what you're talking about, but like I said from a technological perspective it will be possible to do things like that. The question is, are the economics there and is the customer participation there?

Q: So, this also gets to the heart of Evergy and utility culture. Our utilities for 100 years have been fairly conservative and cautious because they had huge investments that were public press they didn't want to gamble with. This requires possibly a new business model. Are you talking about that internally? Wasn't too long ago, a couple of decades, that you went out and promoted heavily the all-electric home, convert to heating, then it became convert to heat pumps. Do you see Evergy getting out there and promoting EVs and possibly building a new business around that?

A: I would say that we certainly have a strategic goal of accelerating EV adoption, but I would qualify that to say that in the grand scheme of things, that is a relatively short-term goal. EV adoption in the short term or accelerating it I should say, it provides three benefits to the utility. It gives us an ever-increasing population of EVs that we can learn from, right, because we know, our goals...what's overshadowing our goals is the belief that EV adoption when you look at it over a 20-30-year time period, electrification of the transportation sector is inevitable. It's going to happen. So, what is the advantage of bringing some of that adoption forward in time provides us with a bunch of vehicles that we can learn from, right? There's no substitute to having vehicles on the ground that can inform the

decisions we make about programs to improve the grid and to get that grid ready for mass EV adoption. They also provide revenue, right, because these programs are going to cost money and so accelerating EV adoption provides that incremental revenue to help pay for some of these new programs, and lastly, every customer who makes that switch to an electric car in for example, 2023, that's one fewer customer who's going to make that switch in 2029 or 2030 so it helps to flatten that hockey stick, which benefits everybody so we certainly over the short term are interested in spurring or accelerating EV adoption and we have rates and rebates that are designed to do that very thing. Looking beyond that; however, we see that our main strategic goal is to just make sure that we can attenuate - lessen - distribution grid impacts. We want to be able to bring these cars onto our grid without producing a bunch of cost because if we can do so, if we can bring these cars onto our grid, let's say cheaply, then that revenue puts downward pressure on rates and that benefits all of our customers regardless of whether they are EV owners.

Q: Just a ballpark seat-of-your pants estimate here, when you see EVs widely deployed in Kansas City, what share of your revenue will come from EV charging compared to say, air

conditioning which is a heavy source of revenue? Will it be equal or half, or what's your sense?

A: Yeah, it will be less than half. By 2030, I mean, it's a single-digit percent of our total load; it's rather small and it's interesting because you can look at EVs from the utilities perspective, we look at EVs through two lenses: you look at through the 30,000-foot lens and it's like okay, I have a thousand vehicles in my service territory and they require X megawatt hours per year to serve them, and that's fine. You compare that to our other loads and that's some very small numbers so you think, that's no big deal. But what happens if those thousand reside in two zip codes? Well, now I've got to look at...

Q: Which may be the case.

A: Exactly, so now I have...my concern is not more the macro level concern of do I have enough generation for all of these? My concern is really, what's my local distribution grid look like and is it able to deal with these vehicles that are clustered in my service territory?

Q: Well, I just want to personally...you started your career at Exxon early on and now you're at a utility that is getting into transportation via electricity. Do you feel like you've come full circle and what does it mean to you personally?

A: It's been a lot of whiplash, yeah. I was...I started my career at Exxon. I'm a degreed chemical engineer and people have long forgotten but in like 1999, oil hit \$9 dollars a barrel and I got shifted over to the electrical generation industry; never escaped. But here I am doing fueling cars yet again so there's kind of a beautiful symmetry to that, I guess.

Q: Do you feel like you're at the leading edge of, forgive the pun, 'where the rubber meets the road' in terms of change at Evergy?

A: I would say that this is arguably one of the most dynamic corners of the utility right now. More informally, I've thought about not saying this but I'm going to say it, what I say is I don't think there's anything that the utility does that's sexy but this is the closest thing.

Q: For an engineer, that's saying a lot, right?

A: That's right. High praise.

Q: We've been talking to Nick Voris. Thank you, Nick.

A: Appreciate it, Thank you.

Nick Voris is Evergy's Senior Manager of Electrification.

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