MARTY ROSENBERG
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ALICE JACKSON INTERVIEW

Q: Hi. We're here today with Alice Jackson who is president of Xcel Energy-Colorado. Hi, Alice. How are you today?

A: I'm well. How are you, Marty?

Q: Very good. Very pleased to have you with us because there are a lot of things to talk about, about innovation coming to Colorado and I'd like to start off with your Transportation Plan. As I understand it, the goal is to have 940,000 EVs on the road by 2030. Do I have that right?

A: That's correct, yes. I believe it was his second Executive Order after Governor Polis took office was to set the target of having 940,000 electric vehicles on the road in the state of Colorado by 2030.

Q: Well. You're the largest utility in the state. I assume you would own the lion's share of that development is that fair?

A: Yes, sir, we do, and we were really excited as Xcel Energy is a company across all eight of the states that we have the pleasure of serving. We announced the goal of hitting 1.5 electric vehicles on the road across all eight of those states inside of our jurisdiction by the same timeframe, 2030.

Q: So, so that our listeners can understand the context of this, California has been the lion in EV developments and a quick check this morning that I did showed that two years ago or in 2018, they sold 153,000 EVs in California. Number two was a distant

number two, was New York State at 15,700 so this is a sizeable undertaking and I wonder if you can tell us a little bit about what the challenge will be upfront, getting those EVs on the road and how you'll have to develop the transmission network and the grid to support it.

A: Oh, absolutely and you have lots of good questions in there so I'll break it down a little bit and you can jump in and go back and forth a little bit on it. But you are absolutely correct; it is a big target and a goal but it's one that we're really excited about taking on, not only for our customers but for our communities and our citizens of the state of Colorado to move this forward. And I think there's a lot of planning that's going into it, including things like our transportation electrification plan that we put forth before our regulators here in the state of Colorado last year, and that was approved early this year and we're in the process of implementing. The first things it focuses on is Number One: they're the ones who are buying the cars and so when it comes to purchasing and making your decision on electric vehicles, you really have to work out; what is the lifestyle? How are you going to be comfortable making sure that in the way that you live your life whether it's a community office, working from home, taking the kids to school, going camping in the mountains, you're comfortable with how you're going to get your fuel for that vehicle, so we're working on a number of…

Q: Alice, it's like…just to interject, when you say we're the ones; you're talking about the customers, not the utility that will buying these?

A: It's a combination, right, so our customers are the ones who buy the vehicles. We're the ones who are helping them lower the barriers to that purchase choice and

whether that's installing charging stations or helping customers understand what that lifestyle looks like; that's where we're getting engaged.

Q: So, let's get in the weeds a little bit. In terms of helping your customer, my understanding is for this $110 million dollar plan, they'll be $5,500 rebates for new EVs and $3,000 for used EVs for qualifying customers. What does that mean and how is this going to work?

A: Sure. So, in the state of Colorado right now, Colorado offers a tax credit. Customers can choose to have that tax credit issued at points of sale versus having it provided in their tax refund and we're the points of sale provider, and so, we've been working with figuring out how do you provide that to the customers so they have that benefit up front versus having to wait for the tax rebate that comes back around. So that helps lower the barrier for customers to access the vehicles particularly our low-income customers in our state when they're purchasing those vehicles, it helps them right up front get that tax rebate so that they can have a lower price that they're paying as they drive that car off the lot.

Q: So, the customer will be buying it with a supplement provided by Xcel that would be somehow rolled in or you'd be reimbursed for your tax credit? How does that work?

A: No, it doesn't necessarily get reimbursed through the tax credit. It's provided via the utility versus coming through the tax credit and then that is something that is recovered over, I believe it is a ten-year period in the Transportation and Electrification Plan rate that's on the customer's bill.

Q: So, for the new vehicle, will any customer regardless of income tax, qualify for that or is there an income threshold?

A: I believe there is an income threshold but Marty, that is something I'd have to go back and look at. I don't remember off the top of my head from the decision that the Commission made on that point.

Q: Okay. And in terms of comfort with this switch, there's going to be, was it 20,000 EV charging stations built? Tell us a little bit about that.

A: Sure. So, one of the pieces of the puzzle for the Transportation and Electrification Plan was looking at how do we provide opportunities in a wide variety of areas for customers to charge. Whether that's the high-speed charging all the way down to helping provide rebates for customers to do the in-home charging installations that they need. Really a strong focus of this though also is in the middle piece, which is working with the multi-family home locations; think condos, think apartments, those areas where you have multiple vehicles parked and not necessarily everybody has their own electric service to their apartments that they would rent and connect their car or even their garage. So, really figuring out how do we make sure that every different aspect of living style as well as workplace has an opportunity to access charging. That's where the focus is on putting those charging stations in as well as working with our communities and our large customers who have fleets in order to do fleet charging and advisory services on how they can convert their fleets over to electric vehicles.

Q: What will the challenge to your grid and your generation and transmission and distribution be and what steps are you putting in place to accommodate upwards of a million new EVs on the road?

A: You know, it's a great question and surprisingly enough, it's not as much as people would expect. Now that comes with making sure that we're working and

partnering with our customers and our communities to charge these electric vehicles at the right times of day so we don't see a significant, if any, increase in our peak load on the system. So that means that you generally don't have to build incremental generation resources. It also helps with lowering the amount of transmission resources you would need to add to the system as well because you'd be utilizing those facilities in the off-peak hours when they wouldn't have traditionally been utilized. So, making sure that we continue our energy efficiency programs for sending the right signals to customers on time-of-day to charge is really important. And I'm excited because a couple of years ago, we had approved at the Public Utilities Commission here, a critical peak pricing for commercial charging which is what that does is really helped us send the right pricing signals to those commercial-sized chargers at the right times of day to avoid certain periods of time that would cause us to have to build incremental generation on the system so this really is a partnership on figuring out how do you incentivize that charging to happen at the right times of the day so you don't have to add more infrastructure to the system that would increase the cost.

Q: So, one of the visions, Alice, that's been floating around for quite some time is given the right signaling and sensitivity of what's going on in the grid, these are potentially one million rolling batteries in storage units for you. Is there any vision yet on how you might be able to integrate them into energy storage plans?

A: It's a really exciting topic to think about batteries, the grid, and back and forth and how that can help with whether that's ancillary services if you really want to get down into the weeds or it's simply as battery backup for homes, businesses, and other activities, so what we have in the Transportation and Electrification Plan that we just put

in, there is an innovation piece to it so that we can continue to push the envelope a little bit and experiment in things just like that. And, whether it's working with our schools to electrify their bussing which is only used periodically throughout the day and periodically throughout the year as well, is there something there or is there other opportunity with personally owned vehicles and common facility charging stations? So, more to come on this one. The technology is not quite there yet where you can sit there and say it's ready to be installed everywhere and it's something you could do tomorrow. But there's definitely a lot of interest in figuring out what the possibilities are and what's the best way to go about tapping this particular opportunity.

Q: Before we leave the EV topic, paint that a little more fully for us how the utility's going to be involved in promoting these vehicles. Are you going to try to encourage sales of them or are you going to be kind of in the background? How aggressive will Xcel be and what role do you see the utility playing?

A: I really do see the role of a utility and Xcel Energy in this as being an enabler. Helping our customers understand what the options are. Helping the dealerships to install the cars and other vehicles to understand how our customers can connect. Be a resource for them to the extent that they need it. And then also to provide avenues of advisory services to our communities and larger businesses who are looking to transition their fleets. So really, we're a resource in this, we're a partner in figuring what does the transition look like? Does it work for the individuals that are looking at it now? And helping lower that barrier to entry with answering questions and quite frankly, making it easy for our customers if it's something they want to do.

Q: As if this was not a challenge enough getting all of these EV plans underway, there's also the Colorado Clean Energy Plan which has you backing off and retiring two coal units and installing 1,800 megawatts of wind and solar. Talk a little bit about that. Explain the vision and challenge there.

A: Oh, absolutely. So, when we talk about beneficial electrification which is what electrifying the transportation sector falls under and reducing the carbon in our systems around us, whether it's from the electric sector or from the automobile sector, you have to look at what is the content of your electricity. Where does it come from? How is it generated? What are the emissions produced from it? And so, the focus of our Colorado Clean Energy Plan is to continue leadership of the energy transition. Back in 2018 at the end of the year, Xcel Energy was the first utility in the nation to come out and announce a zero-carbon system goal by 2050. We also put in there a benchmark of hitting the 80% carbon reduction by 2030 from our 2005 levels. This plan is what shows the pathway to achieving at least an 80% carbon reduction. So, we were really excited to bring forward to the Commission after a lot of modeling and going through numerous details, looking at how electrical vehicles were going to be added to the system between now and 2030 and then being able to present the Plan that from the modeling and from what we expect, will achieve an 85% carbon reduction by 2030 from our 2005 levels. And roughly 80% of the energy that our customers consume would come from renewables. So that's really big movement and transitions that are significant over these last nine years of this decade. And so, quite a bit of significant leadership on how you can transition a system like this reliably and affordably for your customers.

Q: How big of an addition is 1,800 megawatts to your existing wind and solar portfolio?

A: Oh, actually it's much more than 1,800 megawatts. We're looking at about 3,900 megawatts of new, larger-scale renewables. So, it's 2,300 megawatts of wind is what we're expecting incremental plus about 1,600 megawatts of large-scale solar. And just to give you an order of magnitude, our system currently peaks somewhere around 7,000 megawatts and we have over 4,000 megawatts of wind on our system currently, and right around a gigawatt of solar. So, this is significantly increasing the amount of renewables we have on our system and plus the wind side, because we already have high numbers of wind. But we also have some wind that's retiring off the system as well in the same timeframe because we've been acquiring the wind resources on our system for quite some time.

Q: And to complete the picture, tell us what your goal is on installation of new battery storage for this intermittent renewable?

A: Yes, so in the plan that we presented to the Commission, we proposed 400 megawatts of battery storage which is what we're looking at. We currently have 275 megawatts of battery storage from our Colorado Energy Plan that was presented and approved by the Commission back in 2018. And then we have a number of customers who just have individual battery storage on the system that they utilize for their personal purposes.

Q: What about the general goal of electrifying society? EV transportation is clearly a key component. Are there other elements on what you're doing in Colorado?

A: Oh, absolutely. So, building electrification is something that a number of people have been looking at. In January, the administration here in the state of Colorado brought forward, the Colorado Greenhouse Roadmap and in that Roadmap, they are estimating a 20% reduction in carbon emissions from building. And that part of reaching the state's goal under the statue's that in place in Colorado, to achieve a 50% industry-wide carbon reduction by 2030. So, we are also looking at and figuring out what pieces of the puzzle electrification makes sense for. What do we have to do in order to participate in and support those goals and those shifts? That's largely looking at HVAC and heating systems in homes and businesses in order to transition them from either a gas-fired system to electric only. Heat pumps are the order of the day, right, in the conversations but I think that's another conversation you have to dig into with elevation and temperature and where are they going to work for certain customers, not all climates in Colorado, and customers will choose a heat pump depending upon where they're located. But it is a technology that helps achieve some of those carbon reduction goals as we continue to green up the electric sector. That's what's going to help the state reach its ultimate goals in 2030.

Q: What's your vision of the role of microgrids? I know that you had one for several years under development around the Denver Airport. What's the status of that and how do you see it rolling out across your service territory?

A: You know, I think microgrids are a very interesting topic, and there are aspects that are pros and aspects that are cons associated with microgrids, when you consider how do they benefit the system, but then also the conundrum for the customers that are on the microgrid; what pieces of the puzzle do they pay for and not? So, we have these

regulatory-I wouldn't call then barriers or hurdles-they're just questions, right, that we have to still answer on how do you move these forward but I do think that microgrids have a place in how we move a sustainable, resilient, reliable system forward through time. I think interestingly enough when you look at our distribution system, every feeder is of any microgrid in and of itself just because of the way that it operates and who it serves there in figuring out how would you make that more resilient; what are the opportunities there? So, a lot of questions outstanding on how to do microgrid implementation, focusing on resiliency is going to be key first. You mentioned the Denver International Airport and looking at the microgrid there. That one is continuing and ongoing analysis in looking at what is the best way of supporting that infrastructure. But I think that same question goes for the rest of our communities. We recently did a resiliency initiative here and partnered with a number of our communities to add batteries, on-site solar so that they would be more resilient in the event that they had extended outages or catastrophic issues on the system so that they would be able to support their communities and their customers in that area, and so we're currently implementing those resiliency systems here in Colorado. It's been an exciting and educational undertaking, just as it was when we worked with Panasonic on the battery storage and microgrid system that they have there a number of years ago now.

Q: Alice, a few years back, 2016 and 2017, you were studying at the Harvard Business School's Program for Leadership Development, and if you had an assignment to write a paper for the Harvard business publication on the changes of the utility business model comparing 1980, 2020, what would be some of the things you'd try to draw out?

A: Oh, my goodness, that's an excellent question. You know, I think there's a deep-seated philosophy that we could go back to, Marty, about centralized versus decentralized when it comes to these types of energy transitions. I think one of the reasons when you go back and look at things like the Greenhouse Gas Roadmap in the state of Colorado, a very significant portion of the reduction in carbon that's going to be achievable between now and 2030 falls on the electric industry's shoulders because of the fact that we are a centralized entity, you can go there and figure out what are steps that need to be taken. What's the timeframe that we have to do it, and is it cost-reasonable and affordable for customers and move it forward very quickly, versus the decentralized model, you'd have a conversation as well; how many dozens or hundreds of entities would you have to go work with in order to change or to drive a common core change like this through the system? So, I would love to spend some philosophical time really digging into what that looks like. How can you create better opportunities and benefits quite frankly for customers and communities in a decentralized versus a centralized model? And this, of course, would apply beyond the utility sector as well but I think it would be an interesting time to sit down and really look at that and go, okay, maybe our forefathers knew a lot more than we did today when they first put together this type of electric model versus what we see say in the European countries in the way that they've had more of a government-centric model on how they've been doing things, so it's interesting ways of looking at things around the world on how people are achieving these transitions.

Q: So, just to steer you into one particular aspect of this, back in 1980, a key element of the utility business model would have been, build lots of costly infrastructure

because you addicted to capital formation. Get a return on it and maximize that return to shareholders. Is that still going to work in 2030 or do you think there's going to be a new vision for that?

A: I think it's going to be an "and" versus an "or," Marty. I believe that what we're going to see is that there's very much still a need for what people fondly refer to as the grid with a generation. But then, there's also going to be much more of the technological innovation at the individual as well. I think customers, if not their buildings, right, whether their homes or business, are going to be much more intelligent when it comes to using electricity, and so it's going to be an "and." I think utilities are going to be providing more than what we do today. We'll be more of that close-knit energy service provider in some areas where people need things and we'll have competition and so I think it's an "and," not an "or" as far as how it's going to transition through time.

Q: For a closing topic, I would just like to get back to this 940,000 EVs in Colorado by 2030. I can't recall but I'm going to as you to correct me if I'm wrong, any state that's set a numerical target like that, is there any state doing that or is Colorado on the forefront?

A: I do not know of any other state that has a target like that, Marty, but I also haven't researched all the states out there so, we could very well be unique in having that number pinned down.

Q: So, you've been on this job for several years. I kind of looked at your LinkedIn profile. You're in your young 40s and tell me what's it's like taking on a job like this at this time.

A: Well, personally I find it incredibly exciting. It's not just about the job, it's about what we can do for our customers and our communities. I'll go back to, I have four sons myself and I know where their interests lie is in a healthy, long-term future in this country and so, figuring out how do we provide that good services and a healthy environment for them to continue to grow and thrive is central to what it is that I have the pleasure of doing in this role. It's my technological background that lends itself to the curiosity about the advancing technology and innovation that's going to have to happen this next decade and I find it a fascinating time to be in this industry. Marty, I don't know about you but I didn't go into high school and into college going, utilities; that's where I'm going. But I do have to say that after being in the utility sector now for just shy of a decade; I have an anniversary coming up now in less than a month now, so that will put it right at a decade, but I am excited to be here. I'm glad to be here and I truly hope that I get to retire from the utility industry.

Q: So, on last easy question. You served some time at Enron. What was that like and what lessons did you draw from that?

A: Always work hard would be my conclusion of what I drew away from that one. I was there for a very brief time. It was the very first job I had out of college and I learned a lot. I learned, not keep all your eggs in one basket when it comes to investing. I learned that the people who sit around you that you see day in and day out are wonderful, great, hardworking people and that can be damaging and hard when others at the top aren't of the same ilk or have the same values and so, make sure that you believe in your leadership. I learned so much from that job and quite frankly by being laid off by voicemail and learning how to pick yourself back up when 3,000 of your peers

in the industry were laid off at the same time and then find out how to find that next job and stand back up and keep moving forward. And so, there's a lot of memories and I would say I wouldn't trade that time because there were so many lessons learned in the timeframe that I had there and really, really good, hardworking people that I had the opportunity to work alongside.

Q: Thank you. Excellent. Thanks to Alice. I enjoyed talking with you.

A: Likewise. Thank you, Marty.

Q: And thanks for listening to Grid Talk. We have been talking with Alice Jackson who's the President Xcel Energy-Colorado. She shared her insights about changes that are coming rapidly to that state and industry. Please send us feedback or questions at GridTalk@NREL.gov. And we encourage you to give the podcast a rating or review on your favorite platform. For more information, please visit SmartGrid.gov

END OF TAPE