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**#008**  
**Maria Pope Interview**

Q: Welcome to Grid Talk. It's our pleasure today to have Maria Pope, President and CEO of Portland General Electric, to talk about some exciting initiatives at her utility, particularly focused on their efforts to create a smart grid. Hi, Maria. Welcome to the podcast.

A: Hi, Marty. Thank you for including me.

Q: A little over a year ago, when you were talking about your smart grid effort, you put out a press release talking about how you're going through towns in your service territory. Knowing something about Portland, there is a fairly different complexion, I would guess, in terms of the population and make up, of your customer base. You said at the time that PGE will "integrate smart grid technology on a scale never before attempted in the United States," and you also said, "This first-of-its-kind project will leapfrog over other smart grid efforts enable PGE to gain and share learnings that will aid the entire industry." One year and several months on, we're very interested in hearing you talk about what's been started, what early lessons you've

learned, and just fill us in.

A: Great. Well, thank you. We're really excited about these projects, and we're already seeing terrific, early signs of success. First of all, let me comment on what makes them special and first-of-their-kind in the United States and probably even globally, and that is the participation rates of our customers in each of these projects. Traditionally, as we know, integrating distributed energy resources and energy curtailment with customers is generally fairly limited-- frequently in the single digits kind of participation rates. We're looking for over two-thirds participation of customers in these 3 areas, and we're staffing and planning for that. For example, the handheld technology devices and interoperability that we are providing customers is exceptional and allows them easily to integrate with us. We also are working with each of the municipalities in these areas, and they are very distinct, but we have customer relations managers that are ensuring that, by working with elected officials and others, we create a broader advocacy group that touches our customers. If you live in, let's say, the city of Milwaukee, Hillsboro, parts of Portland, you would be able to get a signal on your smart phone and save money by participating in one of our

energy events. We have already achieved savings of about 100 megawatts when we call an event, and our customers are able to save about 10% on their bills. For the average customer, that's a big deal, and it also is something that they are really liking because they are able to participate in really a green energy future and providing a more resilient and smarter grid.

Q: Maria, these tests are in Hillsboro, Milwaukee, Portland, north Portland, I believe.

A: Yes.

Q: Talk a little bit about the 3 communities, how many potential customers you would have, and how many have actually indicated a desire to be a part of this.

A: Sure, so we're in the early stages. In terms of numbers, that's not quite as impressive as the amount of enthusiasm we have for these projects and how this is bringing our customers and municipal leaders more integrated into our product and into our company. Hillsboro is essentially the Silicon Forest of Oregon and many of our high-cut companies are located there. It is also an extremely high-growth area for us. Milwaukee is a more traditional community with long-standing industries and employment base that is quite diverse, a number of people who live in both multi-family

housing as well as single-family housing. North Portland is an area which is, traditionally, as we would think of, as less represented or under-served, and that's an area where we really want to understand how do we engage with customers from our perspective who struggle the most in paying their monthly bills and are making very real trade off in terms of social costs, housing costs, and others and really being able to make a difference in these communities so that they can participate in saving on their monthly bills and in a clean energy future. It includes everyone.

Q: Approximately 20,000 folks will be served in these 3 areas. Is that correct?

A: Yes.

Q: Do you have plans to roll this out across the whole company? Give us some idea of how long the study phase will go and where you think it's headed.

A: Sure. We have a little bit longer to figure out the interoperability between our electrical delivery, the peak pricing that we may have in super critical peak days in the hottest days of the year and the coldest days of the year, so we're really integrated the economics. Then, in addition, making sure that we are getting customer feedback in terms of the experience. Given what we have seen so far,

this is a win-win solution, and I would hope it would scale much faster than a normal pilot would. I would say the benefits from a customer interaction standpoint are also much greater than we initially expected.

Q: Give us an idea or a flavor of what that looks like.

A: As an example, let's take a city councilor whose son lives in one of our target areas. This is someone who really cares about green energy, renewables, and is in a position of decision-making in one of our local communities. She is thrilled that we've engaged her son in saving money on his bill and participating in a more resilient, cleaner grid that will allow us to have a higher penetration of renewables on this system. It has multiple benefits. Some of which we expected, and some of which we never did.

Q: One feature that I read about is your peak time rebates which enable customers, I believe, to donate to the Oregon Food Bank, the Oregon Energy Fund (a fund to support homeless families). Can you talk a little bit about the architecture of that plan and how it works?

A: Sure. Well, what's really important, I think, before we get into how things work is the why. I don't know if you're aware, but we, at Portland General Electric, have the number-one voluntary renewable program in the country. More

than a quarter of our customers pay a little bit more to buy 100% green energy and, really, to clean up and participate in our electrical system.

Q: Let me stop you for a second. Knowing a little bit about the political climate in Portland, it's fairly liberal and progressive. To what extent is that just a reflection of your customer base versus initiatives that you think utilities around the country might learn to apply in different political climates?

A: First of all, while certainly we are more liberal and left-leaning in the Portland Metropolitan Area, we serve 51 different jurisdictions across the state, so we serve a wide variety of views. This works in all circumstances. I would say that it's really important that we listen to our customers and we serve them in how they want to be served, whether you're in a more urban setting or in one of our more rural counties and communities that we serve. I would say that as we look at our voluntary renewable program, that has spread throughout our entire service territory. I think it reflects our customers' not just interest in renewable energy but in contributing to an environment where they feel good about what they're doing every day. As we look at expanding this program, we wanted to include some of our

concerns that we're hearing from our customers with regards to low-income communities and making sure that the clean energy future is one that everybody participates in. As you may know, Oregon is not a wealthy state, and 20% or more of our customers' struggle paying their bills. To be able to provide options to customers to contribute some of the benefits to this program to agencies who have long-standing traditions and track records of traffic service in our state really resonated with a number of our customers.

Q: You believe that partnerships are going to be very important moving towards a more resilient clean energy future. Can you talk about how that works in Oregon and what kind of stakeholders you're partnering up with?

A: Sure. It's a great question. As we make this transition to a reliable, renewable-based grid or electric grid, it's really important that we are inclusive and partner with everyone because this is complex. I have a couple of really good examples. The first one would be our transportation provider, our transit authority, TriMet, they are the 11th largest transit authority in the United States, and they have embraced moving to electric buses and to reducing their carbon output in the communities where they serve. We partnered with them on an all-wind electric bus route, and

there are currently in the design and beginnings of implementation stages of converting 2 of their bus depots to all electric, and that takes major integration between the electric infrastructure that we have as well as their infrastructure and ensuring that, absolutely no matter what, those buses are ready to roll fully charged every morning at 4:00, 4:30, 5:00 in the morning as they provide the transportation backbone of our community. As an example, we're also looking at battery storage adjacent to one of their depots which also works well with the state's 911 center which happens to be located around the block, so we're creating a resiliency zone at the same time that we're looking to providing electric fuel for our transportation system. Another good example would be Daimler Trucks. Daimler's electric truck manufacturing is based in Portland, and when they bring their batteries that will go into their small and large trucks, they need a place to store them, and they need to be able to exercise those batteries so the deterioration doesn't occur while it's work-in-process inventory. It works perfectly with us to be able to provide additional resiliency as we use those batteries as providing ancillary services for the grid and then also work with Daimler with the batteries that no longer provide the



optimal value in trucks but still have the ability to provide resiliency and ancillary services to the grid for the duration of their life. It's been a terrific partnership, and, I think, both organizations have learned a lot as well as our partnership with battery manufacturers. We've worked with, for example, Tesla as well as Panasonic, not only on their batteries but also with Smart City initiatives. This takes us back to stronger partnerships within municipalities that we serve, so we're working with them on not only improved street lighting but also that helps law enforcement concerned with some of the data and infrastructure that they want and being able to work together where we're really creating a world where two and two is not equaling 4 but is equaling 5 and sometimes 6.

Q: A number of years ago, I had the pleasure of visiting your Salem Smart Power Center when you were trying to explore microgrid potential, and, in the last few minutes we're talking about smart grid, let's shift a little bit to microgrid where you had a five-megawatt battery there. You were integrating renewables and providing a variety of tests. What have you learned from that, and do you think microgrids will play a role in the PGE system in the future?

A: First of all, that's a project that was really again a

first of its kind in the country. It was benefited from grants from the Department of Energy, and in 2013, we put together this project really beginning to understand how to integrate battery technology into our existing grid and create a microgrid. The number of learnings were numerous as well as how to work with battery suppliers, both the electrical aspects that went along. We have a visitor's facility, and so not only is the general public able to learn about the integration of solar on the rooftop of their manufacturing facility but also battery storage and how it all works. I would say that at this point in time, that technology has probably seen its day. We are moving on to a partnership with the city of Beaverton with their new resiliency area and their public safety center, again, combining solar, battery storage but at an entirely new scale and a new level of sophistication given what we learned through that project as well as others. I would also say that because all of these projects are open to others to come and look, we've learned just as much from other projects, whether they be based in the Seattle area, Denver, across the country, certainly Southern California, and they've taken a look at our operations. We've also taken a look at theirs. We've advanced, I think, the

knowledge of the utility industry as a whole.

Q: You said the scale of what you're doing in Beaverton is larger. Can you give us some yardsticks to consider the scale?

A: You know, really, what we're beginning to do is not just scale on site, but also scale that we're able to integrate renewable energy from the utility scale system, so excess solar from Southern California through the energy and balance market directly into the Beaverton area where they want to have more renewables. We're also working with Beaverton on a project where they will buy 100% clean energy on a project that we are working towards that will be solar and wind facility, but primarily solar facilities that we will be breaking ground on in about a year in Portland or in the eastern part-- between Portland and the eastern part of Oregon. There's a number of aspects that we're looking at scale rather than just looking at what are the solar panels on someone's roof or what network. We're looking at how to do integrate and, again, leverage every capital dollar for more resiliency in a higher penetration of renewables.

Q: Switching gears for a moment, this year, you're going to be shutting down the Boardman coal-fired generating station. I believe it's 550-megawatt capacity. You were one of the

first utilities to elect to mothball a coal facility. How is that going, and how will you account for that loss generation?

A: Sure. First of all, in terms of the planned closure of the facility, it's going really well. We obviously did this in a very deliberative and collaborative manner, and we have worked with employees on a retention plan so that those who may retire prior to the closure, it's in their interest to stay and work a little bit longer, and we're able to recognize their contribution to the plant that they made. We've placed a number of people who worked at the plant and other parts of the organization, and we also have a retraining and severance program that we're working on in collaboration with the local community college. We also have our equipment at that local community college doing training for our natural gas facilities that are in the same area. It's a retraining but also a training of our own people so that we get really the most, I think the biggest bang for our buck and the ability to have a soft landing for all of our employees and one that works for each of them. In terms of replacement of power cost, we work collaboratively across the region, and we have a number of contracts with Bonneville Power Administration and others

for near-term capacity to make sure that we are able to reliably serve all of our customer needs. We've been planning this for a number of years and have a layer of contracts accepting largely renewable hydro-generation in the region.

Q: Early on, you were exploring the possibility of burning wood biomass of which there's plenty in the Northwest. What happened to those plans?

A: We're continuing to pursue alternatives, and we actually have opened up the facility at the cost for those who would like to pursue other alternatives would be able to use Boardman in 2021 and beyond, whether it's for projects related to hydrogen, to biomass, and to others. People can submit their proposals to us, and we'll take a look at those and the appropriateness to be able to use the facility, to be able to accelerate our knowledge of an industry around clean energy as we move forward.

Q: Turning to a bigger picture, you joined Portland General Electric back in 2009. Certainly, the kinds of efforts we've been talking about here today are very different than what would have been undertaken by your company a decade ago. Looking out to the decade to come, what kinds of changes do you think will transpires on that, if we have

this chat ten years from now, what kind of issues would we be addressing? What kind of picture would we be looking at? What do you think is going to happen in Portland and, more broadly, around the United States in the utility sector?

A: Well, certainly, this last decade has given us a taste of disruption across multiple industries, and the utility and energy industry is no different. I believe that with the pace of technological advances we're going to continue to see lower and lower costs and better integration of renewable energy. There's no question that climate change is first and foremost on our customers' minds, our community leaders' minds, and increasingly on investors' minds, and that's something that we have a long tradition of at PGE. We not only are one of the first to voluntarily close the coal plant, but we were early developers of wind energy, of solar energy. In many ways, this is a continuation of what we have been doing. There's no question that we will continue to see-- with the drop in the cost of integration ability, we will see more distributed energy resources. Customers want to participate in their energy future, and they want that energy future to be clean and carbon-free, and they have higher demands of us given the kind of expectations that have been met by the tech section,

particularly digital companies. So, as we move really to be a full-on customer service business, we're going to be reflecting more and more on customers' values and delivering them the products and integration that they want to see. The things that haven't changed is the safety remains paramount for us and for our industry. Reliability obviously is something that customers have come to trust and become that much harder as we have less resources like the Boardman coal plant and others to rely upon, and I think also the integration with partners to make sure we're working well with those who are using electricity in new and different ways in our world.

Q: Is your business facing unique financial pressures? Are you as profitable as you were a decade ago? Do you expect to be as profitable a decade from now?

A: You know, I think that how we do in our profitability is a reflection of how well we are meeting our customers' needs, and if we are doing what our customers want us to do, if we're delivering the safe, reliable, clean, and secure energy to them in a decade the same way that we have been known for the past decade, then absolutely. I see no reason why our profitability won't be commiserate.

Q: Thanks, Maria. It's been a pleasure talking to you.

A: Thank you. I really enjoyed the time, and thank you for the questions.

Q: Thanks for listening to Grid Talk. Thanks to our guest, Maria Pope, of Portland General Electric, for sharing her insights about sweeping, exciting changes in the electric industry. You can send us feedback or questions at [GridTalk@NREL.gov](mailto:GridTalk@NREL.gov), and we encourage you to give the podcast a rating or review on your favorite podcast platform. For more information about the podcast series or to subscribe, visit [SmartGrid.gov](http://SmartGrid.gov).

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