

MARTY ROSENBERG

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STEVE MALNIGHT INTERVIEW

Q: Welcome to Grid Talk. We're very pleased today to have with us Steve Malnight today, the President and CEO of Duquesne Light in Pittsburgh. Steve was formally Senior Vice President of Energy Supply and Policy at PG&E in California. Good morning, Steve. How are you?

A: Good morning, Marty. It's great to be with you.

Q: I've gone into my archives, and I've dug up an op-ed you wrote for *Energy Biz* magazine exactly 7 years ago this month where you wrote, "As renewable resources and distributed generation grows, we will continue to redefine what it means to be a modern electric utility." We have a sense of what that means in California, but what does that mean today in the industrial heartland like Pittsburgh?

A: Thanks for asking about that. That's a great quote that I forgot about after 7 years, so thanks for reminding me. I think one of the things I've been most excited about coming to Pittsburgh is to see the industrial heartland of this country that, frankly,

builds most of what we have. The first AC electric system was really built right here in Pittsburgh by George Westinghouse back in the day of the battle of the currents. While, I think, California and other parts of the country that have sort of taken the visible lead in things like renewable energy deployment and DERs and other things, you're going to see the rest of the country, and particularly the industrial heartland, continue to catch up. In many ways, we have the opportunity here now to learn from the things that work in places like California, but also the things that didn't work and build a system that's going to do the same thing we talked about doing out in California. We're going to serve customers safely, reliably every day with the power they need but do it in very different ways, in ways where customers are not just flipping a switch on and not thinking about where their power comes from but are focused and concerned about their environmental footprint, the resiliency of their system, maybe their self-sufficiency. Maybe they are powering their electric vehicles instead of just turning on lights in their home. They may be using storage or home automation to have much smarter energy

use. Frankly, all the things we talked about in places like California are, in the future, for the rest of this country as well, because the technology and customer preferences and, frankly, the customer desire to be more engaged is, I believe something that's universal, even if it happens at slightly different time scales.

Q: In California, you had a pretty strong push from state mandate to ramp up on renewables and a mandate on distributive generation, energy storage. Absent that external mandate and also the political climate in California, how much of this will be done, and how long will it take?

A: I think one of the reasons you saw California so aggressive on a public policy perspective was because public policy was required in order to see a lot of these technologies begin their deployment in the early phases of their life. Frankly, there was a day, not too long ago, when solar PV was far more expensive than other ways to generate electricity. I think that because of the leadership of places like California, that have really pushed for technology deployment in those early stages, the rest of the country now has the

opportunity to look at these technologies in a different light. In many cases, there are cheaper options for customers to take advantage of now. You don't have to only want green energy to want solar. You can look at solar as a way, if you're a business customer or a residential customer, to provide certainty and clarity on your going forward pricing and often access power at just the same cost or even cheaper than you could from other fuel sources. I think here we're going to see how economics and customer preferences start to drive a lot of this even if public policy isn't quite the same level of a driver here as it is in places like California.

Q: My understanding is your customer base gets about 70% of its energy from nuclear and 30% is between coal, gas, or renewables. Let's focus on renewables. How big is it today, and how big would you like to see it?

A: For us, we don't generate electricity. We're procuring basically off of PJM for our POLR customers, those customers who stay with us. Customers in Pennsylvania today can take advantage of 100% solar if they want to go to different competitive offerings, or they can go with just sort of PJM power which is just

that sort of 70% nuclear for our region and our local area. Solar is relatively small here in Duquesne Light's territory. We have about 3,000 net meter customers with a total capacity of only about 26 megawatts, but I will tell you that's something that we see growing every day, and we see not only net meter residential customers growing but large commercial users who are looking to take advantage of solar. The University of Pittsburgh, as an example, is building out a 20-megawatt project that will power their campus. It's a grid connected project that will provide about 13% of their use. One project that I think is just so fascinating and interesting, so classically Pittsburgh-- there's a development here called Mill 19 which is a former steel mill that is being repurposed and reused. The super structure of the mill, the steel infrastructure, is still being used. We're literally building new, highly-efficient, energy-efficient buildings inside of that steel superstructure where we're locating research on robotics, artificial intelligence. Carnegie Mellon has several of their research institutes there, and other advanced manufactures are building there. That site is going to

be powered by solar system which is on the old sloped roof of the mill. It's actually going to be the largest single-sloped installation of solar panels anywhere. Imagine your home but going for thousands and thousands of feet, almost 5,000 solar panels on this project. That's going to be there and continue to grow.

Q: What role is Duquesne playing in that project?

A: For most of these projects, these are customer-preference projects, and we're interconnecting them to the grid. As always, the grid needs to stand ready to provide the reliable power when the sun's not shining. I view us, as the grid provider, as the critical partner to enable these locations to take advantage of solar because we're ready to integrate that solar through the system and ensure the grid's there to provide their power whenever they need it.

Q: Let's turn for a second to the subject of microgrids. Your company partnered with the University of Pittsburgh Swanson School of Engineering back in 2015 to launch a microgrid test. 6 years on, 5 years on, where is that, and what have you learned from it?

A: We've done many partnerships with Pitt and Carnegie-

Mellon and others with microgrid testing. That project-- I am not actually aware of that one. That predates me a little bit. There are so many different projects that we have going on.

Q: Just give us the lay of the land of the leading edges of the microgrids and your involvement in it.

A: I think that we're seeing a couple different places where microgrids are being used. In some, on a larger scale, Pittsburgh's airport here recently announced a large-scale microgrid. For them, Pittsburgh's airport actually has a lot of land, and they do natural gas drilling on their land, so their microgrid is primarily going to be powered by natural gas, but they are also building solar installations there as well. We're supporting them as the grid partner to make sure that they can have grid power any time they need it. You see these very big examples of microgrids down to much smaller, community-based microgrids where-- there's a cooperative here called Millvale Food and Energy Hub where they're building a small-scale, DC microgrid to help with education and food health at the local community level. We see microgrids coming. I think the interesting thing that we're all still working on

in understanding a microgrid is the benefits to individual customers for resiliency and reliability and how we make sure that we're providing those real benefits through a microgrid versus a full-scale grid because I believe, when you look at microgrids, you can imagine one microgrid connecting to another microgrid and increasing its reliability even more and then connecting to another and another. Pretty soon, we rebuild "the grid." I do believe the grid, the network that we have been building out for 140 years here in Pittsburgh is still going to be a critical part of enabling all these customers, businesses, and individuals to do what they need to get done. Microgrids can serve a unique purpose at a specific site where power quality may need to be higher, where the reliability needs to be at a significantly higher levels, and it's willing to pay the costs associated with that. I think that microgrids are an exciting concept, but they're exciting to me because, frankly, we've proven out the fact that grids are incredibly reliable and a great societal benefit through the development of the grid which started, as I said, right here with George Westinghouse, building out an AC grid

which probably was called the first microgrid.

Q: When the rest of the technology world thinks about Pittsburgh in the last few years, they've thought about driverless vehicles. I think that started in 2016, and from what I can tell, there are about 5 companies testing 55 driverless cars in 32 Pittsburgh neighborhoods. What is your view of this and the significance of this to Pittsburgh and its future, and what role is Duquesne Light playing in it?

A: I will say that Pittsburgh is today, I think, one of the most significant hubs for autonomous drive research, and it's really built on a foundation which is a broader technology expertise around robotics. Carnegie Mellon in particular is probably the world's leader in robotics research, and that has sort of spun off the autonomous drive vision. It's also looking at robotics in manufacturing and artificial intelligence, so the technology hub of Pittsburgh is much broader than just autonomous drive. That's why you see the Googles and the Apples and the Microsofts also locating here as well as the Ubers and the Argo, AIs and the autonomous drive companies. It's, I think, a critical part of the future of Pittsburgh. When you think about

Pittsburgh, many think of a steel mill town, and, I will say, Pittsburgh has that legacy of building, frankly, the country and making the steel that built this country. I used to look at the Golden Gate Bridge, and it's nice to know the origin of that Golden Gate Bridge and all the steel was right here in Pittsburgh. At the same time, I think that what we really have is a legacy of building the future. That's what is happening here again.

Q: When you see this proliferation of autonomous vehicles and robotics, are you a cheerleader from the traditional standpoint of supporting economic development that most utilities embrace, or is there a change in your business model that might be associated with this development?

A: I do think that what we're going to see is mostly the autonomous drive vehicles in the future are going to be electric. Electrification of transportation is, I think, one of the biggest opportunities that we as a country have to both improve our environment and carbon emissions and local air quality. That's a critical reason to do it. It's also, I think, an opportunity for us to really take advantage of clean, domestic,

locally-produced fuels and power our transportation system. That's the critical beginning. We are a huge supporter of electric vehicles. We're the first Pennsylvania electric distribution company to have an electric vehicle charging pilot approved by the PUC here. We recently installed over 100 charging ports which increased the number of public chargers in Pittsburgh by 70%, and we're going to continue on that pathway. I think the evolution of that is to autonomous drive, and that's where we really have the opportunity through partnerships with DOE, with universities, with others to understand how we best optimize the electric system and the transportation system together. Where do we site massive charging centers for these autonomous drive vehicles in the future? How do we ensure that we have grid capability and the grid connectedness that's ready for that? We're partnering with local universities on those questions and also on the questions of how we bring more solar and renewables onto the system.

Q: You arrived in Pittsburgh a little over a year ago, and it wasn't long before your company announced the acquisition of the efficiency network. Tell us what

that says about your plans for the company and its business model future and describe a little bit about what you see of benefit in the efficiency network.

A: The efficiency network as we call it now TEN, the company TEN-- it is an energy solutions company for commercial customers, primarily in the municipality, universities, schools, and hospitals. They do everything from basic energy efficiency work to lighting to building automation to other work where we're trying to help customers with their unique energy challenges. I'm a firm believer, as I said before, customers, be they large business customers all the way down to individual customers, are going to engage more in how they use energy, and that's going to be enabled by technology. The one-size-fits-all solution of utility grid service is not, I believe, what we will see as the only option in the future. I think we will see significant growth for companies that help customers use energy in smarter ways. That's why we wanted to-- that's why we purchased TEN. We wanted to establish that platform for us to prepare to grow. I think we will be looking at adding in many other energy solutions like solar, like on-site generation storage,

electric vehicle charging and other things as customers look to use energy in many different ways.

Q: The footprint of that company is primarily now in Pennsylvania. Do you see it growing to more of a national footprint?

A: I think that one of the things that makes it unique is their incredible close tie to their customers. I think that regional players often have the advantage of closeness and best understanding of their customers. Our focus is really more on how do we continue to expand the region as well as the offerings that we make. We will see how far that region grows.

Q: Part of the strength of the utility business model for this class entry has been its skill at capital formation for expensive projects. Your company has invested-- I see numbers from 2.6, 2.9 billion in its infrastructure in the last decade wrapping up now. Tell us a little bit about what that's bought you and what kind of infrastructure investment you see in the coming decade.

A: I think that over the last decade we've really been very focused on taking what is a pretty old infrastructure system here (as I said that dates back

to the beginning) and bringing it up to more modern standards. That will continue. That's an ever-- that's what utilities do all the time. We're constantly investing in aged infrastructure replacement. What I see for us in the next decade as we continue to invest in the system is also bringing on much more intelligence, control, monitoring into the system so that we can operate it in very different ways. I think we're a little behind from maybe the California utilities who really released their grid modernization vision, but those are the exact same problems that we're thinking about here. How do we build out the modern grid infrastructure for the future? I think it will absolutely look different. We are going to see a world where customers use maybe less grid energy but use the grid more intensively. How we build our system to prepare for that is really going to be the focus for us over the next decade which will still involve significant investments in our system.

Q: What do you personally like about having moved from a company the size of PG&E out in California to Duquesne, and what are the strengths of this new opportunity, and what are some of the drawbacks of being at a smaller

utility?

A: Having spent 16 years in one of the largest utilities in the country and now coming to a company of about 1,600 employees serving 600,000 customers, there's definitely a lot of differences. I will tell you first the thing I love is Duquesne Light is a company that is intimately involved in our community and the city of Pittsburgh. We are a part of this community, and we take great pride in that. Having the ability to focus on our region and the needs of our region is a tremendous advantage. PG&E's service territory is probably roughly the size of Pennsylvania, and it's very difficult in a service territory that big which spans so much incredible diversity from a Bakersfield, California to a San Francisco to really say that you are intimately involved and connected to the community. You understand the needs of the community, and you're there to serve that community every day. That's, I think, one significant advantage. I think smaller utilities also have a tremendous opportunity, which we don't always use but which we are going to focus on continuing to use here, that it's a lot easier to be nimble and more dynamic and drive change in a company

of our size than it is in many very large utilities. I believe that, while disadvantages may be scale and size and the ability to implement practices across a very broad service territory, the advantage for us is the speed and nimbleness that you can have in making changes faster and trying things and experimenting and learning and changing and evolving. I think that's one of the tremendous advantages of a company of our size.

Q: Do you think change will come faster at a smaller company than a larger?

A: I think that the smaller companies have an opportunity to learn faster from change and to implement change faster than large companies do. Just because you have the opportunity doesn't mean you're always successful at it. It doesn't mean you always take advantage of it. That's, I think, the challenge of leading a company is how do you make sure you understand where your strengths are and really focus on implementing them and working through them. That's one of the things that excites me about going to work every day here.

Q: How has the company fared with its 1,600 employees since the pandemic has hit, and has it forced you to

change your operations in any permanent way, you think?

A: It's interesting. Speaking of dynamic, I mean, as a company, I think we've done very well through this pandemic. We've continued to provide customers in our community with safe and reliable power that they need, and candidly, our size, I thought, was a tremendous advantage early on. We were able very quickly to make the moves necessary to take 1,000 of our 1,6000 employees working from home on a full-time basis. I mean, we took our entire call center, which has always been in downtown Pittsburgh as an in-person call center, and we made it a completely virtual call center from home in, I think, it was about 8 days, 8-9 days. Frankly, the limiting factor in what took us so long was just how quickly we could get laptops. We had people taking calls from home within a few days. I think that what we found over that time is that we're working very well from home. There are significant advantages to it. I think it will be a part of our future no matter what. We're going to have a very different-looking work force in the future, but at the same time, I miss the connection with many of my employees, that face-to-face connection. I think they

do as well, and we're going to have to find a way to ensure that we maintain the tightness of our culture and our team and the alignment we have with our folks and doing that while staying virtual for a little while longer. We're expecting that we're going to be virtual at least through Labor Day. We've told our employees that. Frankly, given that we have to focus on safety and the life-saving nature of our business, we're going to make sure that before we make change that we know we're very safe in getting that done.

Q: Just really quickly, have you had to do any special measures to guarantee the security of your grid as workers started working from home and remotely?

A: I mean, we still have all of our-- for example, CIP and bulk electric systems, that's all still done in our operation centers and other things. We've had very good cyber controls, CIP controls and other things in place from the very beginning, so we didn't have to do too much. As we're looking at new tools, to roll out, collaboration and virtual tools, I would say we're rolling them out a little slower because we want to make sure that we take the right precautions to make sure we're not increasing the vulnerability or risks to

our systems, but that's all, I think, still moving forward at a very good clip, and we're going to be able to implement those systems without increased risk to the bulk system.

Q: Great. Any concluding thoughts?

A: I appreciate your taking the interest in what's happening. We often, as we started off, we often really focus on what's happening in California or some of the largest utilities. I think what I am excited about is seeing how different communities across the country and different customers all take advantage of the incredible opportunities that are ahead of us with technology and good, clean energy production. I think what you're going to see is that, while California and others have sort of led the way to date, I think that you're going to see the lasting and long-lasting solution are going to come from other parts of the country as well. I'm excited to make that happen here in Pittsburgh.

Q: Thanks, Steve.

A: Thank you.

Q: Thanks for listening to Grid Talk. We've been talking with Steve Malnight, the CEO and President of Duquesne

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