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DIANNE SOLOMON INTERVIEW

Hi and welcome to Grid Talk. Today we're very pleased to have with us, Dianne Solomon, who is a member of the New Jersey Board of Public Utilities and for our purposes even more significantly, she chairs the national Committee on Critical Infrastructure for all state utility regulators at the NARUC the National Utility Regulatory Association Commissioners. Did I get that right?

A: No, but it is a mouthful. National Association of Regulatory Utility Commissioners.

Q: Got it. We're here to talk about critical infrastructure at a time when Congress is poised to dedicate upwards of \$80 billion dollars for energy infrastructure. How is that viewed in the states? Do all states have the same readiness and plan on how they're going to use that money to get immediate results for the electric grid?

A: Yeah. Do all states have plans or did you ask if they're all agreed?

Q: Do all states have plans and I assume some are more advanced than others? Why don't you talk about the waterfront?

A: Yeah. I imagine that all states are aware of the funds that are being made available for enhancing the grid and reliability in particular. How each state plans on utilizing those funds will depend on each state. My understanding is that it's going to be through a series of grant awards so depending on how they're submitting for those funds and what the requirements will be is still to be decided.

Q: Well, for somebody that's intimately involved with the electric grid in New Jersey and given your role on NARUC, regulatory environments and realities around the country, how would you describe the grid right now? Is it fairly clear where it needs to head or is the whole three-dimensional reality of the grid changing?

A: Yeah, there's no 50-state agreement on how and where the grid needs to be improved, in what fashion. It really is based upon where you are located and where you stand is sort of where you sit in terms of what you...each state determines what the needs are for their area. But the one thing that all commissioners can agree upon is their charge as commissioners and that's to ensure safe, reliable service at reasonable rates. The reliability and security is a constant, regardless of where you're located in the country. Now, in terms of how states are going to utilize those funds will depend on the policies of that particular state and

region and the, for instance, the renewable energy and clean energy goals of the states. For instance, in New Jersey, we have very robust clean energy goals; however, in other areas of the country, they're more interested in let's say the reliability goals of their area. They may be more interested in offsetting storms, fires, cyber security; it depends on where you're located how, I think, they're going to determine how they want to use those funds.

Q: When it comes to something like the grid, is it a good thing or a bad thing to have basically 50 experiments on how to proceed?

A: No, I think that the original design of the grid was this broad-base system to feed into the different distribution levels but you know, in each region how the grid developed, is maintained and how power is directed to each region differs. For instance, being in PJM, we're aligned with 12 other states and really have a pretty robust transmission system. In other areas of the country, it's not the same as was evidenced by what happened in Texas and sometimes what's happening in CAISO where they can't get the power needed to even support the goals that they have. So, I do not believe that an ad hoc system is the best approach but how to align all those interests and move forward is a real conundrum.

Q: So, to put a finer point on it, you are really at the midpoint between the consumer and people that have to pay the bills and the utility that represents maybe a legacy way of doing business and new players that want to come on the scene and start providing new services and new technologies. And given where you've taken the conversation thus far, where each state kind of has a different way of approaching it, how do you as a Commissioner in New Jersey balance that you want your state to be an early mover and adopter or wait till the technology matures? Is it a case-by-case, technology-by-technology or do you have a general philosophy of how to proceed?

A: Yeah, well most regulators are guided by their governors and their legislatures as to the goals and objectives of that particular administration. The downside of that is that could change from administration to administration which makes it difficult sometimes to accomplish or get to the endpoint of each of those goals. But I don't set policy and most regulators do not set policy. We enact policy from the different states so from that vantage point we look let's say in New Jersey, the governor sets forth an energy master plan. We have consultants come in to try to guide us to tell us how to meet those goals and objectives and then we can begin moving down the line to enact those plans and to rollout the dollars needed to support the different

technologies. So, I think that's generally how it's done even nationwide, some differences depending on the state that you're in. For instance, if you look at New York for instance, they have NYSERDA and then they have it's structured a little bit differently but the regulators themselves are not the ones setting policy. We're the ones exacting policy.

Q: So, the Department of Energy Office of Electricity has just as luck would have it come out with a major report on a system in transition and it has questions that state commissions are asking and I want to run a few by you as either in your capacity as Chair of the Critical Infrastructure Committee with a broad national overview or as somebody more intimately familiar with what's going on in New Jersey, why don't you take a swing at each one. One is, what is the vision for each state regarding the electric system?

A: Well, I think the vision is to make it as secure, reliable, and robust as possible. Reliability is a core function of what we do. We're not looking to have pilots all over the country and then figure out which one is going to serve us best. That's always at the core of what we do to the extent we can bring new tech onto the existing lines to help us in the interim as we bring on these new technologies I think is a real plus.

Q: Okay. We'll get to questions that tackle that but let's go through these and really, just give us your top-of-the-line response.

A: Sure.

Q: What is the role of distribution of utility in vision of the state?

A: Well, the distribution company is also changing to becoming more than just lines going into someone's homes, becoming more service oriented in terms of what they're providing especially in the area of energy efficiency, so they're becoming more system operators and planners and managers as evidenced by the changes you can see throughout the country, there's a lot of changes going on at the distribution level.

Q: So, just on a 30,000-foot level, what kind of investments are going to be required to achieve that vision?

A: For the distribution company or for both?

Q: For the distribution and the state.

A: I think there is well-established agreement that this is going to be or require significant investment at both a Federal and a state level to meet the goals and objectives of both the Feds and the states and where the commissioners and the utility commission sit, we are the ones in the middle and the reason that you're speaking to us is that we are the ones with the balancing

act of how to weigh those investments so that we maintain the reliability yet can move the new grid forward.

Q: What opportunities exist to encourage innovation and market solutions?

A: I think there is a tremendous amount of innovation being supported in the utility space at both the Federal and state level. The Committee of Critical Infrastructure that I chair has a great working relationship with the Department of Energy and that's always helpful and I think supporting the states' initiatives with the Federal government is going to be very important in moving these innovations forward. At NARUC, we have a lot of presentations. In fact, I believe when Rob Powelson was president of NARUC; he used to be the chair of the Pennsylvania commission; he also served as a FERC commissioner and he's now the chair of the National Association of Water Companies. Innovation was the hallmark of his presidency. He encouraged NARUC members to embrace and value innovation - guided the organization in that direction and each year we now give out Innovation Awards from NARUC and at every conference we're looking to have the innovators making presentations so that the commissioners can learn what is being developed in the energy space.

Q: The technologies that are coming on, how do they meet current and future customer needs?

A: Oh, well, there's a lot of customers for instance that don't want to be on the grid at all so there's applications out there so that...I was at a presentation the other day where someone was suggesting that we shouldn't be looking at poles and wires at all; that it's passé. Why are we still even bothering with poles and wires? We should be looking to have everyone do their own at-home support, the backyard nuke or some sort of hydrogen fuel cell that allows you to power your home and that we should be supporting development both in the real estate and residential sector that allow for that. Then there's...you were talking about earlier with the distribution system and the services provided there, with advanced metering technology that allow our utilities to advise us how we're using power to make us more energy efficient, so there's a host of technologies to allow you to use power in a number of different ways at a number of different levels that I think can be supported at different stages along the way. The one area that concerns me in terms of critical infrastructure and a topic that's been top of mind and for us globally is the security of bringing all these new systems into the fore, and that was actually the reason for the creation of the Critical Infrastructure Committee. to look at the

cybersecurity issues facing the grid and industry. , there is a lot more connectivity being advanced for the grid and to look at the security of the grid from that vantage point, but certainly we're even moving beyond that at this point.

Q: So, I really want to turn to grid security in a second but the last question on this series that I'm asking you—I'm rolling a few together here is—how do you manage impact on repairs and balance costs between repairs, shareholders and other market participants?

A: Right, well I think that since it is part of our charge...as I said it's not only safe, reliable but reasonable cost is of equal importance as reliability and security and we have to make sure that we are not building a 'bridge to nowhere' so to speak as we move forward with these advancements. We have to be certain that whatever we're doing can be supported by the ratepayers. At the same time, looking not to let the shareholders off the hook either and to create that balance, and also, look to the private sector to help support some of this innovation. I personally believe that there is a lot of money floating out there in the investment market that could be used to help support these innovations rather than having to go back to the ratepayer each and every time. It seems that everything is subsidized. I think that...believe in our capitalistic system and allowing for

innovators to come into the market and to support these moves forward --that's a point of personal privilege right there.

Q: Okay. So, let's talk about security right now, cybersecurity that your Committee on Critical Infrastructure was created I believe right after 9/11 and in many respects, the world only seems to have gotten way more dangerous since then with state actors joining the terrorists and there's been a lot of attention placed on like North Korea, China, Iran, and Moscow and Russia are doing. Talk a little bit about how your Committee has worked on preparedness and how are you going about this is possibly a new more effective way?

A: Yeah, well, first and foremost, we're trying to educate all commissions about the dangers regarding cybersecurity. Up until 9/11, I didn't think there was a whole lot of attention being given in this space and first-off, providing them with the questions that they should be asking their utilities to make sure that they are prepared to deal with this particular issue. Next comes, how do utilities recover those costs to update their systems to make sure that they are secure? What are the rate impacts? How do we build support for cybersecurity into rates? That's another area of interest. And we have also on a number of occasions and we're doing one in July, we run Black Sky Exercises for the commissioners to give them a sense of what happens if an

event , what it looks like? How do you respond? The particular focus of this event is...actually the one we're doing in the Mid-Atlantic Region that's actually in June, is, who do you call? You have an event; you're there; who are the forces you should communicate with? Who you gonna call? So, we provide that type of training to commissioners. We have suggested orders. We have a handbook for commissioners and we also participate in the ESCC with the Department of Energy and the other agencies of the Federal government to make sure that we're kept abreast of...I'm the liaison to that committee...so we're on those calls and hearing what's being shared in the E- ISAC on a regular basis.

Q: So, we talked at the top at the infusion of fresh infrastructure dollars passed by Congress to try to get things built faster. Would you like to see a good share or can you put your finger on the share that should be spent on security issues?

A: Yeah, I haven't really broken it down into dollars or not familiar enough with the legislation to know how much is broken out better...specifically designated for cyber but certainly that is something that I know that the Department is interested in hearing from the states when they submit their plans - these dollars are going to hopefully include their plans for booting.. enhancing the cybersecurity within their states and their utilities. I mean, the financial and healthcare industries have

been very active in the cyber space. Unfortunately, the utility industry is not as up-to-date as those other sectors and we need to get the utility sector as robust as those other two sectors and we look to make those comparisons and supports moving forward.

Q: Just summing up as you think of the years you've been working on these issues. Is the grid just slowly evolving or is it undergoing a radical transformation as it's moved to more distributed energy resources and have greater heightened concerns about carbon?

A: I've seen dramatic changes in the 9 years that I've served on the Commission. When I first came to the Commission, it was right after Super Storm Sandy and the main focus at the time was on resiliency and redundancy. Then, there became an administration with new clean energy goals and also trying to bring advanced metering in our state, moving us forward in the area of advanced metering. We have more distributed sites within the states that can now operate in the event that there is another storm off-grid. We're supporting new ways of bringing solar to our residents. We now have a community solar program where even if you don't have a roof of your own, you can still take advantage of solar. We have a very robust energy efficiency program because frankly, that's the best use of any of our

dollars is the energy that you don't use being supported. So, I think that there is new heightened awareness throughout the country frankly about the utility business. It used to be that we were the boring kids on the block; nobody really knew what we did but energy has now taken a new space, not just in the states but nationally and globally. It's a really interesting space in which to be involved in something that whenever I go to a career day, there's a lot of interest.

Q: So, just to come at this from a little different angle, as we see the electrification of transportation and EV charging being deployed, do you think our definition of how our electric grid is critical infrastructure is going to change in new ways?

A: Um, more than likely. The role of...

Q: It's going to be part of backbone of our transportation grid as well as...

A: Yep, perhaps. I don't know whether in the long term or the short term, there's also people developing hydrogen fuel cells to operate cars. You never know what the technology, how long and how sustained it will be, but in the short term, because it is connected to the electric grid, it is something that we as Commissioners, have to give our attention to. Remember, we are not regulators of the internal combustion engine. Our interest is from the wires to the chargers primarily and that's our charge

and our responsibility. Different states do it different ways; give responsibility to utility commissions in the EV space but ours is really from the vantage point of making sure that the grid can support the technology and hopefully, there are those in the future that hope that the technology can then help to support the grid so that's where our focus is.

Q: Thank you, Dianne.

A: Thank you for having me.

We've been talking with Dianne Solomon, who's a member of the New Jersey Board of Public Utilities as the Chairperson of the National Association of Regulatory Utility Commissioners, Committee on Critical Infrastructure.

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