

MARTY ROSENBERG
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GridTalk #401

LANNY NICKELL INTERVIEW

Welcome to GridTalk. Today we're very pleased to have with us, Lanny Nickell, who's the executive vice president and chief operating officer of Southwest Power Pool.

Q: Hi, Lanny. Thanks for joining us.

A: Hi, good morning. How are you doing this morning?

Q: Great, so there's a lot to talk about so let's dive in and top of mind for me and it's not getting much discussion that I see in professional circles is we're having an unprecedented heatwave across the United States. It's one of the hottest summers on record and so far, the system seems to be operating well. Talk about that and is there a story here of something working well that we're not appreciating sufficiently and let's dive in and talk about your reserves where they're at and where they should be at.

A: You bet and it has been a fairly hot summer for Southwest Power Pool. I don't know that it's been quite as bad in our footprint which covers 14 states across really the middle of

America and beginning from the northern part in our Canadian border all the way to Texas, the northern part of Texas and so in fact, comparing this year to last year, we actually set our all-time summer peak last year. This year so far, we're about 400 megawatts short of a summer peak this year so, close...

Q: Is there something about the heat wave that you could help explain because all the records have fallen all over the country because of the hottest June and the hottest July? Is it just the way the heat is hitting? Is it not late afternoon? What's going on?

A: You know in our footprint it's not so much the extreme heat that's region-wide as it is in certain locations so, for example, while it may be really, really hot; a hundred plus degrees in the southern part of our footprint, it's still in the upper 80s and low 90s in the northern part and so we just haven't seen that heat envelop the entire footprint like we might have seen last year for example. The other thing that's been unusual for us this year is that we seen wind patterns dramatically different that what we've seen in the past. I'll give you an example: we have over 32,000 megawatts of nameplate wind capacity in SPP. Again, that's across 14 states. On June 6 of this year at 10:00 o'clock in the morning, out of the 32,000 megawatts of nameplate wind capacity, only 110 megawatts of energy was actually produced.

That's less than 0.4% and what's remarkable about that number is that you would expect across a broad geographic footprint covering all or parts of 14 states that you would see more wind than what we saw. That's an all-time low for us so that's been unusual. We haven't seen that kind of low production out of our wind production.

Q: Do your meteorologists have any kind of theories? Is this part of climate change? Is it a one-time aberration?

A: We don't know. The jury's still out on that and we're still trying to figure it out. And I mean, it could have something to do with the La Niña effects that we know have been existing this year. It could have something to do with the heat dome, but we don't know for sure. We have seen other examples of low wind production during peak hours of the summer, not quite as bad as it was on June 6 but we have seen a lot of low wind productions this year and it's alarming because during our peak conditions, we expect to see a little over 5,000 megawatts of wind production. That's what we expect to see and to only get 110 it... granted, June 6 was not a bad day for us in terms of demand but if that same wind pattern had occurred during a peak demand day, that would have been a bad, bad situation.

Q: So, to educate our listeners, give us a sense of wind production across the year. Are there seasons that are higher than others?

A: Oh, yes.

Q: Is it relative? Tell us about it just briefly.

A: Yeah well, we've seen times when wind production out of the 32,000 megawatts, we've seen as much as 24,000 megawatts. Now that's the extreme. Now on the other end, we've also seen wind penetration in records set across the country in our footprint. So, we have what I would characterize as the best wind production in the country in our footprint. The highest potential for wind resides on the western part of our footprint. On average...

Q: You're talking about Iowa, Kansas, the real wind basket?

A: Absolutely, absolutely and on average we see somewhere between 40% and 60% of our wind actually being produced. We're just seeing some all-time lows that we haven't seen previously.

Q: So, when this wind is down, had you had a peak day, would you'd have had to resort to fossil or how would you have met it?

A: Well yeah, because unfortunately in our footprint we don't yet have any solar to speak of. Now we have pretty good solar potential and we have a lot of solar generation in our generator interconnection queue but we don't have a lot of it actually in production right now. Similarly, we don't have a lot of battery

storage. If we had diversity in terms of our renewables then it wouldn't be as alarming when the wind production is down, particularly at 10:00 o'clock in the morning cause that's not a nighttime event; that's daytime. Because we...

Q: Let's talk about...

A: Because we don't have a lot of the other types of renewables we have to rely on gas and coal to cover the gap with our current resource mix.

Q: Let's focus on how long and hard it will be to rectify that. You mentioned your generation interconnection queue; you tell me that 95% of it is renewable. What's holding it up and what plans and ideas do you have for speeding up that queue getting it interconnected?

A: So, we have undertaken huge efforts to try to clear the backlog and some of those requests that were in the backlog have been in there four to five years. We are over halfway through the process of clearing the backlog and we expect that by the end of next year we will be completely through the backlog. We have undertaken a lot of initiatives to try to speed up the process including automation so that we can run more studies at the same time. And we've also changed the process so that we can study requests at the same time as we're studying requests that were submitted later in the queue so we've made a lot of improvements.

But here's the other side of that story. We actually have already completed the process for requests that add up to about 14,500 megawatts of generating capacity, a lot of which is solar and wind and battery, and so 14,500 megawatts of generation can connect right now; they have the rights to connect and we're waiting on them. We're just waiting on them to be constructed.

Q: So, just for...give us the technical background. What's the question here? Is there not enough transmission line out there or is it the technology of vastly complicating your grid by having many, many more points of generation? What's holding out of the queue?

A: So, it's a little bit of both. We do have enough transmission on our grid today to facilitate the connection of as I said, nearly 15,000 megawatts of new generation. Now we have a peak load of 53,000 so that would be significant in terms of percentage of peak load that could be added to the grid. There are a lot of requests that remain in the queue and to be able to facilitate interconnecting them, it will require more transmission.

Q: So, when I had Barbara Sugg, who is the administrator of SPP on our podcast 2½ years ago, she had said your member companies then had invested \$8 billion dollars in upgrades. There's a lot being spent now; there's a lot of federal money being earmarked

for infrastructure. Update us if you would on the pace of spending now. Is it the same level? Has it gone up faster?

A: We have increased that portfolio to a little over \$10 billion dollars and we have identified about another billion dollars of upgrades that need to be connected near our border with a neighboring RTO, known as MISO and we've actually reached out to the federal government to ask for help funding those upgrades and we're awaiting that answer. But we think those upgrades alone will facilitate the addition of anywhere between 28,000 and 40,000 more megawatts of renewable generation.

Q: That's a big deal and is MISO on board shoulder-to-shoulder with you on this effort?

A: Absolutely.

Q: And give us a sense of who is the decision maker on it? What's the bottleneck?

A: Well, right now the decision maker, it's in the DoE's hands so we're waiting on the answer to get that funding because if we don't get the funding, then there's a significant amount of risk that ratepayers within both of our footprints will have to pay for these upgrades and a wait for the interconnection of generation that might not connect, so that's the risk, right? It's we build the upgrades and then we wait on the generators to interconnect and a lot of our member utilities do not want to

have to bear that kind of risk and so, with the DoE's help, that reduces the risk and also with some sort of commitment by the generator developers as well, that will even further reduce the risk that ratepaying customers within our footprints will have to pick up the tab.

Q: So, this 14,500 megawatts of capacity that you've approved clearing this bottleneck, give us a sense of what factors the players in that mix are facing? What model challenges do they face? You've given them the go-ahead. Just practically, what's holding them up?

A: So, we've heard a couple of different explanations. One is just supply-chain. That's one of the explanations we've heard is there's a limited amount of materials available. There's a limited amount of capital that is available to be invested in these projects and so the developers are having to be choosy as to where they spend the limited funds and particularly, if they don't have all the materials they need, where do they use those materials? I'll tell you, across the country among the RTOs and ISOs, there's 260,000 megawatts of generation that have the right to be built that aren't being built so SPP's share of that is fairly small, 14,500 megawatts out of 260,000 but that's a big, big number.

Q: This is predominately solar, would you say, or solar/wind?

A: I don't know the breakdown of that number. You would say predominately? It's going to be renewables; battery, wind, solar that would be the predominate part of that number.

Q: So, has there been any high-level discussions with Biden Administration officials, Department of Energy; look at this number? What does it take to get this thing deployed? Because it would have a huge impact, would it not?

A: It would have a huge impact and I don't know. I'm not aware of that number being shared with the administration and any request for assistance being made.

Q: Um hum.

A: I will tell you though, that again the other part of the story; I've talked about supply chain, I talked about limited capital. I think because of those two issues, the developers are forced to make a decision about where they can make the most money with their projects and unfortunately...

Q: Where would that be? Would it be...

A: It's not in SPP; *laughter*, it's not in SPP.

Q: Would it be in regions that have more population or would it be in regions where's there's political pressure; the greener states like a California or a New England that there are more rewards for building this out?

A: I would suggest that it's probably the combination of two things: one being the goals and the policies around renewables and clean energy in those states and then secondly, where are the prices for energy higher because the higher the prices for energy, the more you're going to make out of your generation project. And I'll tell you at SPP, our prices are among the lowest prices in the country which are good things for consumers, right? It's good that a consumer, you're paying low prices for energy but as a developer of new generation, you want to make more money.

Q: So, talking about the price, in 2014 SPP moved to an integrated market and your website says that since then, consumers have saved \$4.2 billion dollars. How visible or invisible is that to customers and what would you like them to understand about the nature of that savings and what they may expect in the future?

A: I think the number is actually even higher than that, I mean, our most recent study of the annual benefits of participating in an RTO showed that for last year alone the benefits of our integrated marketplace was around \$2.3 billion dollars. That's just for last year alone. \$2.3 billion dollars of benefits from the energy market that we operate. The value to consumers is something that I believe our utilities understand. I

don't know that the consumers understand it quite as well and I think there's a tremendous opportunity to share that message to them that by participating in a largely geographically diverse pool where we have access to over 800 generators in the footprint and can dispatch the cheapest generation possible that they receive a lot of value out of being served in that manor.

Q: So, what the public is aware of and the reason that I interviewed Barbara Sugg 2½ years ago was we were coming off a February disaster at ERCOT which had regional effects across SPP. I'm sitting in Kansas City, all the way up here there were regional curtailments as a result. What has been done there quietly behind the scenes to make sure in that kind of weather event the damage is contained and more rapidly rectified?

A: We had 22 high level recommendations that were concluded out of our post mortem assessment of that event and we have made a lot of progress since then. We have actually completed roughly three-fourths of those recommendations. The more obvious recommendations that have been completed are those around communications. Our communications during those types of events and even before they occur are dramatically better than what they were leading up to the event and during the event, and we find that that's a huge value to consumers. If consumers know how they can help, they're going to help and we think that's part of the

process going forward. Every time we get close, we communicate that and we allow our utilities to help find solutions so that we don't have to take the next step that we had to take during Winter Storm Uri. And as long as consumers are part of that message and hearing it and understanding what they can do, I think that helps even more. Now we're doing a lot of important things like improving in our resource mix and the amount of reserves that we have on the grid that will help us get through such events like that in the future. But I'll tell you in extreme weather is something we're seeing a lot more frequently than we used to and I think it's only going to continue and we've got, we've got to take steps to have the right kinds of resources on the grid at all times when we need them and I think transmission's a huge part of that. I'll give you an example. During the Winter Storm Uri, we were importing from our neighbors because we have a strong transmission grid, 14% of our demand. That's what we were importing from our neighbors, 14%, and it's because of the relationships we have with them and the strong interconnections. This is not to kick ERCOT while they're down but at most, ERCOT's transmission interconnections allow them to import 1½%.

Q: Have they fixed that at all?

A: I don't think they can because of their policies. They do not want to be regulated by FERC and as such, they have limited ability to connect back to the rest of the grid outside of Texas.

Q: Yet, the rest of the region will bear the brunt of any failures down there, still. Is that what you're saying?

A: Well, here's how they are trying to address it as far as I understand. Basically, they are going to have to make...because they don't have enough interconnection capability to rely on neighbors to help them, they're going to have to rely upon the strength of their own resources. I do believe they've made improvements in the weatherization, the winterization efforts to make sure that those resources can perform. I know they're making strides in that regard. It's just that because they can't rely on their neighbors to help or maybe they choose not to, they're going to have to rely more on the capabilities of their own resources.

Q: Let's conclude by focusing on something that you just alluded to and the demands of preparing for increased weather disruptions and more violent changes in the weather, it sounds like the headline out of this podcast is even though we've all been hearing about a record hot summer and even though something you educated us on, your wind resources has fallen off the table at points this summer. You came through and you're coming through

with no disruptions, no blackouts, or brownouts. As you look to the future when you might not have the luck of losing generation at the same time that demand has peaked, what are you doing; how comfortable are you that you are ready to address the next decade of weather events in the 14 states?

A: The first thing that we did at the beginning of this year was to create a new group of policy makers. Those include regulators in our footprint. They include high-level participants from our member companies and they include some of our board members. That group has set out to dramatically improve our resource adequacy policies and part of those policies that have to be developed and improved include making decisions about increasing the reserve margin requirements. Making decisions about assuring we have the right reliability attributes within the resource mix of the future; things like demand response. We know that there's opportunities with demand response to help. That's when customers whether they're large customers or small customers decide that they can reduce their consumption to help out, so those are the kinds of things that we're working on and I think that if we can accomplish that, we will be well-positioned for the future but we still have work ahead of us to develop the right policies to serve the reliability needs going forward.

Q: So, just on the point of demand response, how much of it can be set and initiated at your regional level versus at the utility level? Is there a role for SPP to play in encouraging this?

A: Yeah, absolutely and I think that whether it's SPP or the utilities, control is really the key word. We have to be able to control it and not just assume that it will show up. If the utility or if SPP has the ability to control that load, that's the kind of demand response we're going to need from a reliability perspective.

Q: Okay. Just a quick, quick report card if you would. On the day you had peak demand this summer so far, what was your reserve margin and what would you like it to see it be at the end of the next decade?

A: We had about 2,000 megawatts of what we characterize as headroom. That's close cause that means you can have a couple of contingencies and the headroom goes to zero.

Q: So, as a percent, express that as a percent?

A: That's about 5%.

Q: Is that something that you're comfortable with? Would you like something closer to 10%?

A: I would like something closer to 15%.

Q: Okay, so your system was stressed this summer?

A: It was stressed, absolutely.

Q: And do you have strategies and plans in place to give you confidence that you'd be at a 15% margin...

A: We do.

Q: Going forward?

A: We do. We're still working on developing those policies that will better assure that the 15% that we expect to have actually shows up in real time but we are working on those things.

Q: Okay. My last question to you is you've been with SPP according to my calculations 26 years. How would you characterize what it's like today versus your entire career there?

A: *Laughter.* That's a great question and I'll tell you I'm more nervous now than I've ever been in my career. That's how I'll characterize it.

Q: Would you say it's a high level of excitement and satisfaction that goes with that?

A: There is. You know, I love what I do. I've always loved what I do at SPP and despite the fact that it's more challenging. Despite the fact that I find myself waking up in the middle of the night, not being able to go back to sleep. I still love what I do; we're serving the better good and we're bringing renewables to bear and we're doing so in a reliable way.

Q: Thanks, Lanny for joining us and have a good day.

A: You bet. Thank you very much.

We've been talking to Lanny Nickell, who's the executive vice president and COO of Southwest Power Pool.

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END OF TAPE