

**MARTY ROSENBERG**

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**PAT COLLAWN INTERVIEW**

Q: Hi, and welcome to Grid Talk. Today we have with us Pat Collawn in New Mexico. Pat's Chair, President, and CEO of PNM, and we're going to be talking about some very interesting financial approaches the company is taking to deal with climate change and rebalancing and redesigning its grid and its generation system. Good morning, Pat. How are you?

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

Q: Good, good. I know from your background that you studied journalism in college, so what's the headline you would put on what's going on in PNM in New Mexico regarding the energy transition act?

A: I would put the headline as "The State of New Mexico and PNM take the lead in climate change while ensuring adjusted transition for its workers."

Q: That's a pretty good lead. Let's dive in now and talk a little bit about your plans to retire the San Juan coal generation plant in 2022 and what you are looking at in potential stranded costs had nothing been done.

A: Well, we are looking to retire San Juan in 2022. This is

really kind of a culmination of a long journey for PNM. You know PNM was a founding member of U.S. Climate Action Partnership. We supported Waxman Markey. We shut down 2 units of San Juan back in 2017 and did the same thing there. We saved our customers money.

Q: Why did you do that in 2017?

A: The clean air act requires that visibility be restored in class one wilderness areas and national parks. By 2064-- you know, we live in this beautiful part of the country, and there's 22 national parks and wilderness areas nearby. The EPA asked us to put selective catalytic reduction on San Juan generation stations, but it was really expensive. It would have been about a billion dollars for the entire plant at the time. It would have doubled the book value of the plant, and we said, you know, that's not the right thing to do for our customers, and it's not the right thing to do for the environment. You will have the same generation that will be a little less knocks and socks. We already had bag houses and scrubbers, but it doesn't do anything to reduce carbon, and it doesn't do anything to reduce water usage, so we worked with the state and the EPA for about 18 months and came up with an agreement where we would shut down 2 of those units and then put selective non-catalytic reduction

on the other half of it. That was only about 50 million for our part, so about 100 million for the plant-- much, much cheaper.

Q: So, that bought you some time, and now you are going full born and closing the entire remaining 2 units.

A: We were able to make that first closure without any job loss. We were able to handle it all through attrition and retirement.

Q: The loss of power from that, how did you ramp up and replace that power?

A: We owned, or we still owned, some of Palo Verde. We had some of Palo Verde that was not in regulated rate base. They were out in the merchant market place, a little over 120 megawatts, so we brought that into rate base. The other thing we were seeing even back then is we didn't need as much base load power. What we needed were flexible resources to bring in renewables. When we let the models run, the models also picked a fair amount of solar to replace that shut down of San Juan. We live in a very great solar and wind potential part of the country, so renewables made sense for us. We needed less space then.

A: We will talk about that in a second. You are ranked 10th in the nation in renewables. Where would you like to see

that go?

Q: On renewables?

A: Yeah.

Q: Do you think you could become a major producer? Do you have a plan to head there?

A: We are working with the state now on how to develop New Mexico's renewables because, you know, we're a small state. We have about 2.2 million people and fairly temperate weather, so we don't use most of our renewables. Right now, we're working on some transmission lines with the state. The state just passed some legislation to imply industrial revenue bonds to transmission lines to help develop it, so we're in the midst of that plan with the state. Gov. Lujan Grisham wants to unlock that potential, so we're still working on that piece of it, but we think it's a huge opportunity we. Are in the process at PNM of joining the western imbalance market, the energy and balance market which will help bring us into that western renewables trading which is going to unlock savings for our customers and the potential to export our renewables.

Q: Getting back to San Juan, you are looking at a stranded asset there, and you came up with an energy transition act. In broad strokes, what's new about it, and what could the

rest of the country possibly learn as it deals with stranded assets and the energy transition?

A: One thing I want to go back to before I start on the energy transition act is, while we were dealing with those 2 units of San Juan, we did our integrated resource plan which every utility has to do. It was a three-year process. It showed up that San Juan and the other 2 units of San Juan were not cost effective, so we were in the process of looking at how to shut those units down in a way that made sense. I think sometimes people think the energy transition act caused the shutdown of San Juan, and it didn't. It enabled the shutdown of San Juan because the economics for natural gas--

Q: These economics would be the low cost of gas versus the cost of coal.

A: Yes-- are compelling. We had San Juan to your point. We had on our books unappreciated costs of about 283 million dollars plus some decommissioning costs. With round numbers, it was about 300 million dollars. We said, look, we are willing to give up the shareholder profits on those. They are in rate base. They are used and useful. The book life wasn't out until 2053 which had a bit of proof by the public regulation commission and securitize that piece. We can give up the shareholder profits on it, but you know,

it's like you sell the house, and you still have to pay the mortgage off. We would be willing to do that because we know we can then take that money that we get from the securitization bonds and reinvest it in clean energy and the grid, which as we know, we need to modernize in order to take advantage of renewables. We also wanted to make sure working with the governor that the workers were taken care of. The four corners area up there is very much an extractive area. There are a lot of Navajos up there. The unemployment rate for young men on the Navajo nation is very high. We wanted to make sure that we could help that area develop. In kind of an ironic twist, the San Juan generating station was developed back when it was an economic development project to use that area's coal resources to bring wealth and jobs to the area. We're coming full circle on it.

Q: Just returning and closing the loop on the financial plan here, you were able to take a potential loss of upwards of up to 300 million to translate it into a 14 million loss in 2023, is that the way this is working?

A: Well, I wouldn't say we are taking a loss in anything. We are forging shareholder profits on the un-depreciated value of San Juan. We are able to then turn around and put that

money into new generating assets. The way we see it is we're not taking a loss. We're preventing our shareholders from having to take any kind of a write off and saving our customers about 7 dollars a month by securitizing.

Q: Got it. You recently, I think you had an earnings call with analysts. What is Wall Street asking you about this? Are they excited about this or kind of furrowing their brow and asking questions?

A: No, our shareholders and our analysts are thrilled about securitization. Most utility shareholders for all utilities are long-term shareholders, so they have a long-term point of view. They see we can take the money and turn around and invest it in the grid and clean-generating assets. Any shareholder, any analyst would tell you they'd rather see a utility investing in clean energy in the grid than in a coal plant. When we did the same thing on retiring 2 units, even though we didn't securitize, they were supportive of that. I think the issue for other utilities is a lot of people don't like the securitization tool because the utilities feel they are entitled to a return on and return of the assets.

Q: This is reflecting kind of an attitude shift by you and your management team, isn't it? What kind of reception of

questions are you getting from your peers or in the industry about this?

A: I think there are some people that are very interested in it and see that it can be part of a global solution to a clean energy transition. There are some, quite frankly, that are not happy that we did this echoes they feel we gave up money that rightly should have gone to shareholders, and that is obviously other utilities' determination to make, but we think the solution to climate change will require a compromise on everybody's part, and this solution that we had in New Mexico was such a win for the workers, for the environment, for us, for the community, for the governor who was able to move to an 80% renewable portfolio standard. We were able to make sure it was a clean energy standard because we don't believe we can go to 100% renewables in the near future. We haven't seen the technology to do that. I think it's just a matter of--

Q: Just to get the milestones on record here though, the transition act calls for 50% renewables by 2030 and 80% by 2040, and by 2045 having a carbon-free grid. Those are pretty ambitious goals.

A: They are. They won't work for every state. The reason we are confident in the renewable portfolio standard piece is

because of the wind and the solar quality that we have in our state and because of our ability to join the imbalance market. We know what kind of renewable capacity there is in the western part of the United States. We are confident on the clean energy piece because we have nuclear. We said to the governor and we said to the state, look, that last 20% makes us a bit nervous. Not all the technologies are there yet, so we have put together a working group with Sandia national labs, the national renewable energy laboratory, New Mexico State University, our land office here in New Mexico, and the western grid group to evaluate new technologies. We're also very active in EPRI, the electric power research institute, to figure out how we get that last 20%. We're looking at pumped hydro. We're looking at hydrogen. You know, we've seen things like kinetic energy. We're looking at iron flow batteries, so there's lots of exciting stuff out there that we're confident.

Q: One innovation that's off the table, as I understand it, is some are floating the idea of looking at carbon capture at San Juan. As you know, this is something that's been floating around going back to 2003 with the DOE's FutureGen project where carbon capture was on and it was off again. Do you think the financials and the technology of carbon

capture just will not work, and what is your impression on that?

A: I think there are 2 issues. 1) Here for us in New Mexico, what we need are flexible resources. You know, coal plants are base load plants. They are really hard to run as cycling plants for renewables. Whether it's carbon capture or just a plain coal plant, they don't really work in the new flexible generation portfolio. We have seen carbon capture and storage technology work in the northern hemisphere. We have Petra Nova in Texas and Sachs Power. The concerns we have are two-fold. 1) We haven't seen it work at the scale of San Juan generating station. San Juan is a very large station. It's old in coal plant terms. It's younger than I am, but you know, it's not a purpose-built power plant. We also worry about what the costs of it are. We think that the costs that are being estimated now, if you look at the costs of the other 2 are low. So, you know, we're a utility with a smaller balance sheet. We just don't think it fits into our systems needs, and we are not going to take a technology risk on behalf of our customers. It just doesn't make sense.

Q: You are not really vetoing the technology per se but just saying it's not right in this particular circumstance.

A: Absolutely, absolutely. That's a very eloquent way of putting it, Marty.

Q: Okay. Let's talk about some of the other efforts you've done where you have 18 solar centers, 270 million invested in solar. Your energy efficiency program, I understand, reaches 375,000 homes with 525,000 customers. That's got to be a sizable percentage of your customer base. How successful have they been, and what have you learned from those efforts?

A: We're very, very happy with our energy efficiency programs, and very proud of them. What we have learned-- we're kind of done with what I'd call the low-hanging fruit, and we've learned that customers are very adaptable. There's a new-- I've been doing this for a while now, and there's what I call a new ethic in customers. Whether they just want to save money or whether they want to do their part for the environment, people are more open on how to use less energy. The next step for us is the ability to work directly with customers through smart meter technology. We do not have smart meter technology here in New Mexico. It's a little difficult to make a business case when your average monthly bill is 75-77 dollars a month. We will be filing in an energy efficiency filing to do smart meters, but that will

be the next step so that customers can get more real-time information and control their usage more directly. We're also looking at some more electrification opportunities. We're looking at vehicle electrification--

Q: Just on the smart meter thing, there's been an approach that has a certain capital cost with it. Given the parameters you just discussed of the demographics of your customer base, are there new technologies that you're looking at that could give you the flexibility of time-of-day rates, etc. without the cost of smart meters? Is there a short cut here?

A: Not really because you want to build the functionality to be able to do more renewables integration, to participate in the imbalanced market, so you don't want to do kind of a temporary solution to your customers and then a few years later do another solution to your customers. Most of the money in smart meters is in the back office, and the communications protocol, not the meter themselves.

Q: Okay. Turning back to your generation plans, you've got quite a bit of gas generation, but you're going to be backing off of that in the 2040s. Is that correct?

A: That is correct.

Q: 2040 is a long time away, but it's really not in terms of

utility capital planning. How are you going to get there and what technological challenges do you have to address before you get there?

A: Well, we will get there. Most of our current gas plants depreciate before 2040. The current ones that we have even, you know, all go off. The new gas plants that we are talking about putting in, we would just give them shorter depreciable lives, so we would depreciate them in 2040. Marty, when you put that in the integrative resource plan and run the number, even depreciating those plans more quickly, it still is more cost effective than staying in San Juan. What we are looking at, to get to that carbon-free piece then, is we are looking at hydrogen. A lot of the big turbine manufacturers are trying to see if they can run turbine machines on hydrogen. We are also looking at batteries, but we're looking more at iron-flow batteries because, right now, lithium ion batteries just don't give you the storage you need. Believe it or not, we have some pumped hydro here in New Mexico, and we are looking at exploring that with the Navajos because that could also help take some of that bridge there for us. Like I said, we're not 100% sure lead on that last piece, but that's what we're looking at, and that's what we have that group of really

smart renewable energy labs and EPRI and others that we're working with.

Q: Let's take a minute and turn to something else that I know has been important to you. You and I talked quite a few years ago about your views of building a diverse work force and being one of the first prominent female executives in the utility sector. How successful have you been? What hurdles remain to clear, and what kind of challenges are you taking up to advance that goal further?

A: We've been really successful here at PNM in terms of building a diverse work force. We actually just did some promotions, and we promoted 2 new female officers. About one-third of our office work force is female and diverse. I think part of it, for me, I have a built-in advantage because when people see a female CEO leading a company, they are very attracted to it. I think we've made a lot of progress here at PNM. I will say we have a built-in advantage that we are, our state is a majority of minorities, so we can have a diverse work force. I think the industry is now getting there, and we've had some progress in terms of commitments at EEI. I think everybody understands that in this tough of a work place environment with full employment you have to come up with strategies to

attract people that may not have been attracted to your industry before. One of the ways we sell this industry, and we sold it at PNM is, you know, you wouldn't have Google, you wouldn't have Amazon, you wouldn't have Facebook if you didn't have us. We find that a lot of especially younger and diverse folks want to work for a company and an industry that has a sense of purpose, and man, we have one here, so we have become much better sales people. We used to not want to sale our industry, and you've seen it. I don't have the latest numbers, but in the electric utility industry, there are more female CEOs than, I think, any other public sector. People have been requiring female--

Q: That's counterintuitive because you look around the EI meetings for decades, and you hardly saw any females, and you say that that's changed dramatically?

A: It has. You look, there's myself, there's Lynn, there's Patty Poppe. There's Mary Kipp. Kimberly Harris just retired. The new person at Green Mountain Power is female. I think what's happened, Marty, is, I think, it used to be much more of an engineering and a financial discipline, and while you still have to be very good operationally and financially, the key to success is stakeholder management, and this is somewhat of a stereotype in general, those tend

to be skills that women are better at. I have seen some women that aren't good at it, and I've seen some men that are very good at it, but it's a new way of being successful.

Q: I'm going to put you on the spot a little bit and ask you if you think this diversity of female entrance into management and diverse workforce was a significant factor in PNM's development and transition strategy and its flexibility in approaching stranded assets where a typical male engineering executive of 10-15 years ago would have said, look, it's legitimately in rate based. We put it there with approval. Let's earn every drop, every penny out of it. Whereas, you have a more flexible look of things. How much of that do you think is a result of the changing work force at your company and other companies?

A: I think, Marty, you hit it spot on. You didn't put me on the spot. I think absolutely that diversity that we have here made a difference in our thinking and our decision making. One of my colleagues was out doing a radio interview, and the producer was very young. Afterwards, she pulled me aside and just went on and on about how thrilled she was with our company and what we were doing in the clean energy. I was out at the airport, and somebody came up to me, and said, "You look familiar." I said, yeah, I'm here a

lot. He said, "No, no. I know who you are." I'm thinking, "Oh, I'm going to get blasted." He went on for 5 minutes about how thrilled he was with our company. I think having that diversity, having younger folks and getting out there has made a huge difference because, I think, we reflect our communities more.

Q: Do you think having a female governor helped too?

A: Absolutely.

Q: Did you wink at her and she winked back and said, "Let's do this?"

A: We don't wink at each other, but yes, I mean, I'm in her office, and I'm like, "You're making me a little nervous, but we will figure out how to get through it." Yeah, part of it is she and I have known each other, and we trust each other. We have a good relationship. At the end of the day, you have to have trusting relationships to do these kinds of things. We actually didn't write the energy transition act. It was the scariest things in our lives when the environmental community said, no, no we're going to do this. We will call you because you need to help us with securitization. I said to my lobbyist who actually happens to be female and diverse too, "When do I get to see the bill?" She said, "We get to see the bill the same time

everybody else does." At that point in time, you just have to trust.

Q: Obviously, making this transition act a success and implementing it is going to be a sizable lift on your plate for the next few years. Pushing that aside, what other accomplishments would you like to achieve and what other plans do you have coming down the pike that the rest of the industry might be interested in learning?

A: Obviously, the energy transition act and the whole portfolio transformation, so what we do about four corners is job 1. Our second pieces here are the grid modernization here at PNM and the development of the renewable resources and then continued growth in Texas. You know, Texas is still growing. It's not just the Permian basin although that's a big piece of it. That continued growth plan that we have in Texas.

Q: You talked about the resources. Everybody knows there's a lot of sun in New Mexico. California as well as Texas will have needs for power. Do you see your business model evolving in terms of developing resources that might be useful beyond your state and beyond your customer base?

A: Absolutely. Whether or not that's in the development of the generation or the transmission, we probably would prefer

transmission over generation development, but we do have a joint venture with AEP to develop renewables, but we are definitely turning our eye to how we help the state get those renewable resources to California. I think a little known secret is that we have the number 3 onshore wind potential in the United States here in New Mexico.

Q: You have about 1500 miles of transmission. Do you want to grow that or do you want to evolve it in terms of its capability?

A: We need to do both. We need to evolve it in terms of capability, but we also need to grow our transmission because a lot of that wind is in places not served by any transmission yet at this point in time.

Q: What excites you most about your job right now?

A: Being able to help lead this energy transition is just so exciting. That and turning, you know, looking at the new generation of folks that are coming up to be leaders. Between the 2 of those things, it's, you know, I've been doing this a long time, but it makes it incredibly exciting to be here and come to work every day.

Q: Thanks, Pat.

A: Thank you, Marty. Good to talk to you. Bye.

Q: Thanks for listening to Grid Talk. Thanks to Pat Collawn

of PNM for sharing her insights about changes in the electric industry, particularly in the Southwest and New Mexico. If you like this podcast and want to hear more, please visit our site which is at [SmartGrid.gov](http://SmartGrid.gov). You can send feedback to [GridTalk@NREL.gov](mailto:GridTalk@NREL.gov). We encourage you to give the podcast a rating or review on your favorite podcast platform. Thanks, Pat. Bye-bye.

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