MARTY ROSENBERG
August 16, 2024
GridTalk #422

DOUG CANNON INTERVIEW

Hi, and welcome to GridTalk. Today we have with us Doug Cannon who's president of NV Energy out in Las Vegas, the primary investor-owned utility in Nevada with 1.3 million customers spread across approximately 45,000 square miles.

Q: Do I have that straight, Doug?

A: That sounds right, Marty, and it's a pleasure to be here with you today.

Q: Yeah, thank you. We're very much looking forward to this conversation. The reason, the method to my madness here, is our last podcast, we had Amanda Peterson Corio who's the head of Google's Global Data Center Energy operations. We're all reading in the news and hearing about how data centers are becoming huge consumers of energy and Google has taken it upon itself to be within a decade, totally reliant 24/7 on green sources of energy and as luck would have it, or maybe not luck, maybe design; Nevada's where they're testing their concept first. As far as I know they're engineering a new tariff which we'll discuss, is specifically getting at funding new sources of renewable, clean

energy that are available not in it aggregate but 24/7 has consumed. Doug, tell us a little bit about the genesis of how you and Google went down this road. Whose idea was it? How much work went into it? And then we'll get into it how it's operational.

A: Yeah so, again it's an honor to be with you Marty, and really what prompted this and you hit in your initial comments. We see our customers today being very interested in a different type of product than a utility has historically offered. Historically the utility, when a customer comes to us, says, yep, here's our tariff book; yeah, you can go ahead and pick from the one offering that we have for large commercial customers, right?. There weren't options. We gave them one large commercial customer tariff and that didn't give the customer any opportunity to customize that product to meet their business objectives cause they've also got a set of customers and that set of customer has certain demands and so what we really quickly recognized is we couldn't just rely on that tariff book anymore and we had, if we were going to stay relevant in the business and we were going to be a value-add energy provider for our customers we had to change our way of business cause here's the other point that I think is really important. These new players that are in the market; I say new. Google's been around

a long time; Microsoft, Amazon, but these datacenter providers and the new loads that they're bringing on, they're backed by a lot of capital. They've got a lot of money available for investment. These aren't some…this isn't somebody who's captive. This isn't somebody who doesn't have options and they've shown their willingness and their ability to secure and modify kind of the energy supply in a sector if they can't achieve the outcomes they want. So, we looked at that and said, hey, customers are demanding it and we have customers that now have the ability and the financial wherewithal to go find alternatives and candidly to make us irrelevant if we don't get engaged in this conversation.

Q: So, let me stop you right there, Doug. How widespread in the utility sector is that awareness that you've just articulated? And how much do you see change coming in in the industry rapidly as this demand escalates?

A: I think that view Marty, is growing. I certain hope that view is growing because I think we're going to see some utilities bypassed and some people really push some developers, some of these big datacenter companies really push for different outcomes if utilities don't become aware of that view really quickly and really say, what's it going to take for us to

continue to be a value-add energy provider for our customers and be someone who delivers solutions and…

Q: So, to put a point on it, historically going back a century, the strength of utilities was their ability to add capital formation to raise large sums of monies for very expensive power plants and transmission networks and you're saying new customers are coming at you every bit as financially strong as utilities have been historically and they're forcing change to this industry.

A: Absolutely right.

Q: It's interesting to me that you would think the change would be coming first to California or New York State. Why Nevada?

A: You know, I think a couple of reasons, one, Marty, I think we've shown in Nevada a willingness to be business friendly. We have a good business environment. We don't have personal income tax. We've got generally an environment that is friendly for corporate formation, maybe not as famous as Delaware but Nevada's up there. It's known for its corporate-positive environment. We have a current governor in Governor Lombardo that very much wants to push a pro-business agenda and as the utility, we feel it's our responsibility to help advance those policy interests and so we want to partner with the state to

advance business opportunities in Nevada and we quickly recognized if Nevada's going to be business friendly and we're going to be out in front, we've got to have an energy provider that's there as well, and we have to be innovative. And that may take us having to go with our regulator and change some things that have existed historically through our Public Utilities Commission. It may even take some legislative changes but we can't expect to continue to grow and advance in this innovative environment in which we're in today by just relying on our old historic practices; it's not going to get us there.

Q: So, Doug, walk us back to the very beginning of this story. There's now a clean-transition tariff in place in Nevada. Who's idea was it? Tell me about the early discussions; was there reluctance on any part or were all parties very excited to proceed? Give us the backstory.

A: Sure, so this actually starts several years ago. Google came to us. They were going to build a new datacenter in Southern Nevada but they didn't just want kind of our standard tariff offering and we didn't have anything else for them so we went to work, rolled up our sleeves and actually developed our first clean-energy tariff at that point and we had two customers enter into that, that kind initial offering. Google was one of them and then actually Raiders Stadium was the other one and

under that arrangement we utilized some renewable energy resources that we had here in Southern Nevada and we were essentially able to utilize credits from those facilities to offset load, and it's a model that others have since utilized. It was a model that did allow us to achieve the first 100% renewable Super Bowl this year so we like to tout that as well, but that's really where this story started with Google is they, they also entered into one of those transactions but Google came back to us and said, look, we want to expand in Nevada but we really want to match real time with our load. We don't just kind of want to retire credits and play the credit, the transaction or kind of the balance sheet approach. We really want it to be as timed as close as we can, real time. And we said, okay, let us roll up our sleeves, let us get to work and let's see what we can put together, so I would say…

Q: Specifically, would that mean they want electrons delivered to their facility that were green, or they wanted to have them generated somewhere at some point to match their load? Talk about how it works.

A: Yeah, I mean I think ultimately they'd love to have green electrons; I don't want to minimize, I think they'd love to see green electrons and we have a number of customers that would love to see true, green electrons. We're not there today. What

this product, what we're focused on is there was real time green generation being injected into the NV Energy grid at the same time as Google was utilizing energy on the NV Energy grid, so there is absolutely incrementality and there's absolutely a real time match on that energy and so that was really the premise of it and it was really a joint idea between us ang Google saying, okay, here's the objective that we want. We as a utility roll up our sleeves and get to work and let's figure out what we can develop together.

Q: So, Doug, specifically, did you have to develop a mechanism for identifying periods of time where the demand might have exceeded what you had on your system in green power and then find a way to fund projects to bring that green on? Is that what this is all about?

A: That's in part what this is all about. What makes this product also unique was Google's willingness to step up and fund a portion of it so what occurred here is they wanted to have some geothermal. They felt like geothermal energy helped advance their interest and gave them the best opportunity to match load real time just given the characteristics of that energy source so we actually went out, negotiated a Power Purchase Agreement with a new energy provider, Fervo; they're a newer geothermal energy developer, for 115 megawatts and we dedicated that

resource to Google but here's the difference. Google stepped up and committed to take 100% of that output financially over the entire life of that PPA, that Power Purchase Agreement.

Q: And how long is that PPA?

A: It's probably a 15-year PPA and the way Google looks at it, we actually priced it so that Google can pay a higher price for that PPA if they want to take it over less years so ultimately, our customers are indifferent because Google's paying 100% of the cost for the product.

Q: So, what in essence is happening here is Google said, here's the contract, here's our money; build this plant and that will be subtracted from our load as pure green energy.

A: That's right and then we can use other green resources that we have to help address times at which maybe that plant isn't available or to help smooth other hours that may not be fully covered by that plant. We can use system-green resources that we have and then they would just pay the system costs for that resource cause again, that was one of the really important premises for both us at NV Energy and it was important for Google and Google made this clear to us as well. They wanted to ensure that whatever product we brought forward held other customers harmless. They wanted to make sure there was not a cost shift to other customers because they didn't want to ever

appear to be a burden on the system or a cost center on this system.

Q: So, let's talk for just a second, statewide in Nevada, 58% of the generation's gas-fired, roughly a quarter is solar; 10% is geothermal at this new project that you're talking about. Under 1% is wind, 3% is hydro. Do you think Google is large enough single handedly and a few other companies that you've mentioned to really leverage change in that ratio and do you see for example, geothermal going way beyond 10% as these players help incentivize development?

A: I think they are, Marty. As we look forward, let's talk about our northern Nevada system in particular, so this is our Sierra system up in the Reno area. If you look at that system, we've had various datacenter interest come to us that could double or triple the size of that system in the next eight years, so right now, that system it's certainly the smaller part of our system but it peaks at about 1,800 megawatts. There are very foreseeable circumstances that in less than 10 years that system is a 6,000+ megawatts-peaking system and so, if that's primarily driven by datacenter load and that datacenter load is interested in the type of resource we had in this clean-transition tariff transaction then yes, those could materially move the percentages of renewable energy that we see on our

system now. We have to be wise as we bring that additional energy on to ensure that we maintain system reliability with variable resources and so, we'll need to look at how do we utilize batteries? How do we utilize other resources on the system to ensure that we're maintaining voltage to maintain resources when it's not sunny or when that variable resource may not otherwise be available, so we will have to proceed carefully and in concert with our customers because we can't compromise reliability.

Q: So, give us your corporate objectives. NV Energy I assume like most utilities has green energy plans and the state may as well. Do you hope to be carbon-free by 2050? What's your objective as a utility?

A: Yeah, our objective is to meet the needs of our customers and meet the policy objectives of the state and so, right now, the policy objective of the state is to be 50% renewable by 2030 and so that's our near-term focus is to ensure that we have sufficient renewable resources in place to meet that 2030, 50% objective and we are on track to achieve that. We achieved about 39% renewable energy last year and that number continues to increase and so that's near-term. The state has not come out with any mandates that we achieve some decarbonization by 2050 so we continue to work very closely with the legislature, with

the Public Utilities Commission and the governor's office, always listening to our customers in setting the pace at which we adopt decarbonization cause one thing that we do here in Nevada is we want to make sure that we do it at the pace where we can maintain reliability but we can also be very cognizant and aware of affordability.

Q: So, but what about the facts on the ground? You alluded to what's happening in your northern territory where the mix there is going to be heavily non-carbon given the customer's desire and the impact of Google. Might those eclipse state policy and get you below 50% non-renewable, non-sustainable, non-green sources faster?

A: I think those could get us above 50% faster.

Q: We're saying the same thing.

A: Yeah, yeah, yeah, no absolutely, and that's a good thing because again, that's a decision being driven by our customers and if that's the pace of play that our customers want to proceed on, we will absolutely proceed at the pace at which our customers want to proceed and kind of where's their interest so yeah, we would be excited about moving that agenda forward even quicker given that's where our customers want to go.

Q: So, you talked a minute ago about working with the legislature and the Commission and the governor's office. How

receptive were they to this clean-transmission tariff Google proposed? Were they strong supporters? Was there any political fallout from that? How did the sell go?

A: Yeah, we haven't heard political fallout from this clean-transition tariff yet. The governor's office, the message we received from them is we want to support new business in our state and so as long as we're advancing new business, we have a supportive voice there. Our legislature, it is very supportive of advancing renewable energy and decarbonization so this is consistent with those objectives. The Commission has not weighed in on it yet. The Commission…the tariff is filed with the Public Utility's Commission right now and we are working through the approval process with our Commission right now and so, I'll reserve any statement on what the Commission may think because we're in that active proceeding right now but I certainly hope it is well received by the Commission because we worked very hard to ensure that we put forward a tariff that protected existing customers and advanced state policy objectives both from a climate perspective as well from we think a business development perspective.

Q: So, Doug, what's the timeline on that one? When will that be taken up and decided?

A: Yeah, the Commission, the latest update I had and there's really two parts here, Marty. The first part of the program, the Power Purchase Agreement itself, that's in our Integrated Resource Plan. We'll have a decision on that by the end of the year so we'll know if the underly energy contract is approved with pricing and all of those pieces, and then the tariff is on a slightly longer timeline. That will be approved probably first or second quarter of 2025 so that was a little longer than what we wanted to see but that was a procedural schedule that was set and so we will continue to work with our Commission and the other parties in that preceding to make sure that the underlying tariff also gets approved.

Q: Does that mean the actual geothermal plant we're talking about is on hold until these decisions come in or is the project going forward?

A: That really would be a question for Fervo and how they're proceeding because I suspect like many of our Power Purchase Agreements if the Commission were to deny the underlying contract and the project wouldn't move forward, but right now, we're very optimistic about the regulatory outcome here. We don't have reason to believe that there would be a denial. Again, we think it's a very balanced product and a very balanced tariff and Google has really taken on the risk here and that's

one thing we think that's going to be really important to our Commission is that Google has stepped up. Google is not asking to shift costs to other customers. They're taking those costs on and so it really is a positive arrangement and Google is being a great player in the state of Nevada from my perspective with this transaction.

Q: Will this plant go into your rate base as an ordinary asset or will it be treated differently?

A: It's treated differently. When we do a Power Purchase Agreement, we don't rate base those. They flow through our fuel and purchase power expenses and so, it's just an expense so we actually don't earn on this at all. We get…we simply…Google will actually send us a check for the energy received each month just to offset the costs, so because it does not go into rate-based, we don't earn on this.

Q: Um hum so, the next question I want to ask you is a 30,000-foot kind of question. Google has 17 campuses in 13 states and you may have read they're expanding rapidly; five new datacenters that are in planning. They have this tariff negotiated with you. They're working on a similar tariff with Duke in North Carolina as I understand it. Thirteen states and growing if they're going to be seeking something like this, will it make a C Change do you think in regulatory policy in utility

thinking and business model as this kind of approach of partnering with customers accelerates?

A: I hope it does. I hope that it causes a sea change both with the utilities as well with regulators. I hope what utilities recognize is we can be that trusted value-add partner with these data centers and we can do it in a way that protects existing customers. On the regulatory side, I hope it gives them some confidence that we can move away from kind of the standard old tariff book and we can show that it really can be in the public interest to be able to adopt some of these new products and these new innovative approaches to meeting the needs of some of these new customers and the way they approach the world, and I really hope our regulatory environment will really kind of innovate as our customers are innovating. I think it's really unfortunate if the customers are innovating and our regulatory processes don't, that's going to put us at a significant disadvantage that creates a lot of challenges for our customers going forward and cavalier challenges that don't need to be there. We need to really challenge both ourselves as utilities, and challenge the regulators to say, hey, let's innovate together and there's ways to do that without harming existing customers and ways to maintain reliability and advance

sustainability, so this can be a real win-win all the way around.

Q: So, I'm going to ask you a personal question. Now, in addition to your law degree and your considerable experience on the regulatory front, you have a masters degree in environmental studies. I don't think that's very common in utilities' C Suites. Tell me how that colors your enthusiasm for a project like this and just as a corporate citizen, what do you think is going on here?

A: Yeah, so my undergraduate degree, and you're right as well as my masters degree is in environmental science and it was science-based earth systems and it does inform my decision-making today. I truly believe that there are balanced approaches that we can take that allow the economy to continue to grow that allow society to continue to innovate and benefit from that innovation utilizing natural resources that we have in a way that is more sustainable and responsible for generations to come. I truly believe that balance can be struck and I believe that balance is best struck as the provider utility; the consumer, in this case, Google, and regulatory/political forces come together and find balanced policy outcomes and I think this clean-transition tariff is a great example of what those balanced solutions can look like going forward and I hope this

is a stepping stone to much bigger outcomes. I really hope there are other utilities out there that innovate even further than we do and bring forward even bigger ideas and I look forward to learning from them and advancing our utility just as I hope they're learning from us today.

Q: But do you think the old model that's run well for a century now of utilities amassing significant buckets of money as we talked about earlier, buying very expensive technology that had to be reliant and resilient and could not have margin of error that was unacceptable and then earn a return on that, that model is going to be transformed into something new. How does your business change? How do other utilities business change?

A: Yeah, I think the fundamental model of the business; I think there's still value for the customer in that model, right? We are still going to need a certain level of transmission so that we can maximize the efficiency of the grid. And we can take resources from the Pacific Northwest for example and during certain times of the year bring them to the desert Southwest. Or at certain times of the year, it would be great to tap into resources in the Midwest and bring them over into the desert Southwest, and so, transmission can still facilitate the sharing of those resources. And we still need generation. Now whether

that generation comes in the form of solar or wind or geothermal, or some new technology: battery storage; whatever form that energy generation comes in the form of for the future, there's still a public need for a body to be there that can front the cost. The public then pays a reasonable return to get the benefit to receive all benefits from that project and then the company receives their return and the return of that money over a period of time. I think that model still holds water. I just think we have to innovate how we have approached what infrastructure's being built and how we're building it, and I think we need to look at things like distributed energy resources and the role that those resources can play. That doesn't mean the utility has to be out and it doesn't even mean we have to completely break and throw away the old utility model. We have to get comfortable recognizing that the infrastructure we've invested in, it's going to be different, and that's okay and the customer demand is going to be different and that's great, too so, let's innovate, let's adopt new technologies, let's be comfortable operating the grid differently in the future but it doesn't mean there's not a place for utilities. I absolutely am confident that there's a role for utilities in the future and we bring a tremendous benefit to the public.

Q: Thank you, Doug.

A: Appreciate it, Marty. Appreciate the time and the conversation today. Always a pleasure.

We've been talking with Doug Cannon, who's the President of NV Energy in Nevada.

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