

MARTY ROSENBERG
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Grid Talk #219
JASON RONDOU Interview

Q: Welcome to Grid Talk. In our last podcast we had with us, Lauren Faber O'Connor, who is the Chief Sustainability Officer for the City of Los Angeles. She laid out a vision the LA100 bold plan to make LA one of the most sustainable major cities on earth. Today we have with us, Jason Rondou, who is Director of Resource Planning, Development and Programs for the Los Angeles Department of Water and Power, otherwise known as LADWP. Good morning, Jason.

A: Hey, good morning, Marty.

Q: Thanks for joining with us. We really look forward to a deeper dive into the landscape that Lauren charted for us in our last podcast. Specifically, to get to the nub of the issue, today your utility which is the largest municipal utility in the United States, gets 40% of its generation from renewable. Lauren says you're on your way to a hundred, in fact, you're going to be at 80% by 2030. Today, 52% of your generation's carbon-free. You're going to take that all the way up to 97% by 2030. We'd love to talk to you this morning about how you're going to do that and to see what other utilities, municipal and investor-

owned can learn, so why don't you dive right in and just say, how are you going to work this magic in nine years?

A: Yeah, and really excited to be with you and kind of share what we've learned over the last several years with the LA100 Study and as you mentioned, I mean 2030 is right around the corner and we have the opportunity and the plans to get to 80% renewable by 2030 which will put us at 97% carbon-free and so we've got the framework of how to achieve that. The study that you mentioned-LA100-really was unprecedented in its technical achievement and really laid out different paths to getting to 100% renewable energy. But we know that regardless of the path that we take, the next 10 years is going to be very similar by any way that we get to 100% so we know that the biggest piece is renewable energy and that will surprise nobody, but I think what will surprise folks is that to achieve 100% renewable energy, it's not simply about replacing fossil fuels with renewable energy; it's actually about almost doubling the capacity that we have relative today, so if you look at all the storage, all of the solar, all of the wind, all the geothermal that we have today, we're going to have to double it. LADWP is very fortunate in that while we're about 10% of the state's load, we actually have about 25% of the state's transmission so we're very transmission-rich. But even with that, we know that we need to really

dramatically increase our transmission capability, in particular within the City of LA, so that's really the second piece that we need. We also know that...

Q: Jason, how...just on that transmission, how much of that is building new lines versus just changing out existing technology with better technology?

A: Yeah, that's an excellent question and it's going to really depend on how we get to 100% renewable energy. So, we actually looked at this from a couple of different perspectives. We looked at it from the perspective of adding new transmission capacity but also, we looked at it from the perspective of trying to really maximize the resources that we have within the City of LA so maximizing the local solar, storage, and demand response. Regardless of what scenario we go with, we know that there's a baseline of no-regrets transmission investment that we need to make. And the majority of those are not new corridors actually, not calling for brand new transmission corridors; however, I mean they're still fairly major upgrades. These are potentially running new cables to existing towers, actually upgrading towers, so it's actually quite a bit of work and an interesting thing that and I mention is that we already have a significant amount of transmission resources and so even for us, we need more transmission upgrades so what I think many of the utilities

are probably going to realize in the future is that we're not unique in our need for transmission. We're the first to really have modeled it in so that is one really important finding from this effort.

Q: So, Jason, transmission is expensive and just to bring everything up-to-date, one thing that Lauren mentioned is getting to 100% renewables has to be achievable, reliable, but also affordable. And there's movement in Washington I'm sure you're tracking, to pass substantial infrastructure assistance a good portion of which is going to go to the grid. Do you think LADWP might be in a position to tap some of those resources to make this transformation even more affordable to your customers?

A: Well, I hope so and I'm optimistic that we will be because we're I think we're leading the way not only in our planning and our ambition but in investments that we've made. We, as you mentioned, we're comfortably over 50% carbon-free today and we will be about 97% by 2030. We are also making substantive investments, major investments in things like hydrogen technology where not only grid funding help support the advancement of those technologies but it could also as you mentioned, just make it more affordable. And affordability is not just important to what we're doing; it's fundamental to what we're doing. The transformation not only has to be renewable and carbon-free, but

it also needs to be affordable, and it also needs to be equitable. We need to ensure that this renewable transformation does not exacerbate inequities that we have in the City of LA and that would be true for the elsewhere as well. We have a really big opportunity to not just avoid inequities but actually improve inequity in making significant investments in disadvantaged communities. So, affordability is extraordinarily important, and one of the ways that we make sure that this transition is affordable is by seeing electrification. Electrification really underpins our ability to do this affordably. We need to see significant strides on electric vehicles and we've shown leadership in that area, too, but it's also building electrification, so we're able to see the electrification materialize the way that it's on pace to do and the way that we hope to see it. We can do this affordably and that was another finding from the study.

Q: Another way of putting this by getting greater penetration of EVs into your fleet and to your commuters as well as electrifying buildings by creating greater demand for electricity, does that make the unit cost of electricity stay stable as you make these investments?

A: Yeah. One of the findings that we had was that if we do see electrification that we see and you said it, making...seeing more

electric vehicle sales and more electric vehicle's options means that we're leveraging the investments that we're making in infrastructure and we're spreading that out over more units and the reality is that brings down the unit cost for everyone. But it's not quite as simple as just adding electric vehicles. We need to make sure that our distribution grid has the capability of supporting that so we really need to ramp up the investments that we're making in our distribution grid to ensure that we can continue to provide reliable power and again, this...it really underpins our ability to do this affordably.

Q: So, as Director of Resource Planning, you mentioned hydrogen and use of hydrogen technology. Tell us...expand on what role hydrogen might play in LA by 2030 in the grid?

A: Well, one of the important findings from the study...another one of the important findings from the study is that to do this renewable transformation, we need to do this reliably and we need to do it in a way that is resilient; resilient to things like wildfires; resilient to things like earthquakes both of which are risk factors for California and for Los Angeles. In 1994, we had the Northridge Earthquake where we lost our import capability so we were not able to import external power into the city. We actually have four in-basin within the City of Los Angeles or close natural gas units which we're able to provide

power in 1994 when we lost that capability. In 2019, something similar happened with the Saddle Ridge Wildfire. It actually took out the vast majority of our ability to import energy into the city. And similarly, the in-basin generation, the generation within the City of Los Angeles or near City of Los Angeles was able to provide the power to the city until we were able to restore those transmission lines. And so, the study actually found that under any scenario that we get to 100% renewable energy, we need some type of long-duration capacity within the City of Los Angeles. And it really comes down to the technology available today. It would be through either biofuels or through hydrogen, in particular green hydrogen. And so, recognizing that reality that to do this carbon-free transformation reliably, we need to have some type of long-duration storage, long-duration capacity and we have begun making significant investments in the Intermountain Power Project out in Utah and what we need to do there is actually build out the hydrogen capacity to be able to store it. Now in that particular location we have not just the conflict of renewables, so there's access to solar, there's access to wind, there's access to geothermal. So, there's this great confluence of renewal energy. But what we also have out in that location is salt caverns and those salt caverns can actually store hydrogen energy. So, we would produce hydrogen through

electrolysis utilizing the vast resources...renewable resources and actually store it and store it for months. We could store it and use it when we need it most. But what we are also beginning to do is looking into the feasibility of doing that within the City of Los Angeles where the degree of difficulty is much, much higher. But it really comes down to decarbonizing all of our generation resources and we see hydrogen as the path to doing that.

Q: So, just complete the loop. Once you put the hydrogen in the salt caverns, how do you pull it out of the caverns and re-utilize it? Do you just...

A: Yeah, I don't know that I'd be able to walk you through the technical aspects of that but essentially, it serves as a giant battery. You're able to produce the hydrogen; you're able to store it a salt cavern, and you're able to use it when you actually need it and I think many people understand the concept of a traditional battery where you store energy for a few hours and you shift the energy to a different part, different time of the day when you need it. But the really special thing about hydrogen and in particular that Intermountain Power is the ability to store it not for just several hours or for several days but to have a type of seasonal storage that you might need. And where that becomes really important for a City like Los Angeles is and

for many folks who have visited or who have lived here know that seasons in Los Angeles where you have just beautiful sunshine and very, very mild temperatures. In the April and May timeframe you may have just phenomenal solar production in the City of Los Angeles, but folks aren't running that air conditioners and so what you have is the opportunity to produce hydrogen in seasons like that and save it for July, August, September and actually even into October where you might have consecutive high heat days. And when you have consecutive high heat days and you have the threat of something like a wildfire or earthquake, we need to ensure that we have the ability to provide power for multiple days should we have an outage for multiple days, and hydrogen does provide that opportunity for us.

Q: So, when we chatted with Lauren, she highlighted two projects that she was particularly excited about and we'd love to get you take on it. One was the Eland Solar Power Center in Kern County which you point out is destined to become one of the largest solar battery systems in the United States. Tell us a little bit about that and what work you're doing on it?

A: Yeah, the Eland Solar and Storage Project is really the first project that we have negotiated and procured that has significant amount of solar as well as storage so it's formula is lots of solar energy and 1,200 megawatt hours of storage. It ac-

tually will be able to provide solar energy late into the evening, long...several hours after the sun has set. And the important piece of this is where it's located. It's actually located out in Mohave where we have what we refer to as a 'renewable hub.' We have several other solar locations out in the area. We also have a windfarm in that area and we're able to import that energy into the City of Los Angeles through a renewable hub that provides us the ability to really leverage that transmission corridor. Now, it's also record-setting in its cost; it's below \$40 per megawatt, and so it's extraordinarily cheap and it's going to be an extraordinary resource for the City of Los Angeles when it actually comes online in 2023.

Q: The other project that Lauren mentioned was the Red Cloud Wind Farm in New Mexico which you pointed out will be producing enough energy to power the equivalent of 22,000 homes in Los Angeles. Talk about the scope of that project and what challenges it poses to you from a planning and development standpoint?

A: Yeah, the Red Cloud Wind Project is an exciting project for us because it's as you mentioned, it's actually out in the New Mexico area and so this is a perfect example of LADWP leveraging our existing transmission capacity to bring on renewable energy and replace fossil fuel energy so this particular windfarm; we would be bringing power through transmission lines that used to

actually bring coal energy to the City of Los Angeles. These are the same transmission lines that we are utilizing to bring the power and we just recently brought this to our board, to our council for approval. It's a 331-megawatt project and again, extraordinarily low cost. And, I mentioned a moment ago the importance of a renewable hub out in Mohave with the Eland Solar and Storage Project. But what Red Cloud does is also offer us the geographic diversity of renewable resources so when the wind production in the Mohave area might be reduced, we've got the wind production coming in from the New Mexico area. In addition to this, we have the ability to actually add solar and storage along this transmission corridor as well to really maximize that existing transmission line that we have already.

Q: So, the goal is to get to 80% renewable by 2030 but beyond that if memory serves me, I think she said that by 2035 you want to be at 100% renewable, is that correct?

A: That's correct so that LA100 Study modeled many different ways to get to 100% renewable energy and also listed the scenario where we would get to 100% by 2035. And following that finding from the study the city announced a new goal of accelerating the state's goal of 100% by 2045 by 10 years so achieving that 10 years earlier which again puts us on track to do 97% carbon-free by 2030.

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Q: So, just talk about that extra 20% from going to 80% to 100% between 2030 and 2035. How hard is it going to be to ring that extra 20% out of the system? Is it going to be an order of magnitude too difficult, more difficult than getting to 80%?

A: Well, I think it's no secret that to get to high levels of renewables there's a relatively clear path to doing that and the degree of difficulty when you go from say 90% to 100% does go up and we know that but again, this gets back to our ability to really accelerate technologies like hydrogen so that it does make that last 10% more achievable when we actually do get into the 2030 to 2035 timeframe, so there's no doubt it's...the next 10 years is critical for us but beyond the next 10 years we will continue to need to add more and more renewable energy to keep pace with forecasted demand growth so it will be no doubt an unprecedented challenge for us and for other utilities that follow our lead.

Q: So, Lauren and I chatted a bit about the extent to which Los Angeles as the fourth wealthiest city in the world and one of the largest cities in America is going to be leading the way in a lot of these efforts. From where you sit, Jason, working on planning, development and programs, how exciting and how nerve-racking is it to be a major metropolitan area in the world

that's really leading the way on stuff like this? How much of it is going to force you to forge direct relationships with organizations like the National Renewable Energy Lab and make them deeper and rely on others to help you on this journey?

A: Well, we really benefitted from the multiyear partnership that we had with the National Renewable Lab. The outcome of that as I mentioned was an unprecedented study, the first of its kind, and it is extraordinarily exciting to be...to have the opportunity to play a small role in the renewables transformation. And you mentioned the City of LA having the opportunities to do this but one of the things that need to look at and we're beginning to look at now is the LA100 Study discussed environmental justice and equity and discussed the framework to look at that. And many folks don't quite realize that LA is extraordinarily economically diverse; 47% of the city is of disadvantaged communities so while there is significant wealth in the city, there's also a significant portion of our city that we can't afford to have rates increase at a pace that makes this transformation unaffordable for a big portion of the city so not only do we have an opportunity for this renewable transformation, we have an opportunity to look deeply into equity and last month our board, the LADWP Board of Commissioners, approved an unprecedented investment into developing an Equity's Strategies Plan for this

renewable transformation. So, this will be a follow-on to the LA100 Study that where the LA100 Study was industry-leading in its technical achievements, we believe this Equity Strategies Plan will be similarly unprecedented and similarly important for this overall renewable energy transformation so this is exciting and significant from a renewable transformation perspective but we cannot...we will not see success in this renewable transformation without looking deeply at equity and ensuring that this transformation has been equitably as well.

Q: So, have you thought about how that's going to affect your job as resource planning? How will the equity overarching goal of achieving equity for the disadvantaged community drive your job as you develop...?

A: It's going to change it; it's going to change it in several ways. Two of the most obvious ways it will change is the participatory element of power planning and program planning, ensuring that the folks most affected by the transformation have a significant voice in the planning process. It also will impact our planning efforts and our programs from the distributional aspects as well, ensuring that investments that we make in this renewable transformation benefit frontline communities. We know that the future power planning, not just related to the future but many utilities, there is a significant opportunity to part-

ner with customers to develop renewable resources. And, you see that with rooftop solar; opportunities like smart thermostats and now with customer-side in energy storage. And often these types of programs provide a great resource to the utilities but it also requires that customers have the ability to make that co-investment; that they have that money, that capital; that they have the...that they own a home; they have a roof that is in good condition to do that and so the way it's going to change what we do is to ensure that folks that don't have that ability, that don't have that extra money can still participate in that program. Programs are tailored to all kinds of customers.

Q: Lauren put it differently. If you come across a technology that would help you ramp up and get to that 80% to 100% renewables and 97% carbon-free, but that technology is simply through-the-roof expensive, this equity consideration will mean it goes to the back of the line, won't it?

A: Yeah, there's some truth to that concept in terms of prioritizing the least cost investments. Power planning is a little bit more complicated than that because there are resources and different uses for different resources. An example of that might be batteries. There's a role for batteries. There's a role for renewable energy. There's a role for long-duration storage. There's a role for in the form of hydrogen so I think conceptu-

ally, you're right. We need to plan our investments in a way that prioritizes the affordable investments that we need to make today and that gets back to the investments that we need to make over the next 10 years. We know what those least-cost investments are. We know what those no-regrets projects are regardless of the path that we go down to get to 100% renewable energy. And regardless of whether or not we have opportunities to pivot should other technologies materialize quickly, we know that there are those no-regrets and I mentioned it before, transmission is one. Electrification is another. Bulking our string distribution is another and again, underpinning all of this is affordability and equity and reliability.

Q: The thing that's from the outside observer, that's exciting about this is the emphasis on equity. It probably will mean that projects you pioneer in technologies that you champion would be applicable in many parts of the world that might not have the resources of a Los Angeles.

A: Yeah, you know, we do have a really special opportunity for many reasons, but I think us in a leadership role will benefit not just the City of Los Angeles but it will benefit many of the utilities across the country and across the state and will hopefully and ideally inspire and enable others to follow our lead in this area but it really comes down to, we need to do this and

I've said this before, we're leading the way and we need to do it in a way that's equitable and reliable and if we don't. If we do this in a way that's not reliable and if we do this in a way that's not equitable, that's not a replicable model for other utilities so it's not that reliability and equity and environmental suggestions are ancillary to what we're doing. It is core to what we're doing so you're right; if we do this right and we do this in a way that's affordable and equitable and reliable, we'll have done it in a way that utilities can...can follow our lead.

Q: Thank you, Jason. Thanks for the conversation. It's been really great.

A: I appreciate the invite and I'm really glad that there's interest in what we're doing. I'm really thankful for the opportunity.

A: We've been talking with Jason Rondou, who's Director of Resource Planning, Development and Programs for LADWP, the Los Angeles Department of Water and Power. Please send us feedback or questions to GridTalk@NREL.gov and we encourage you to give the podcast a rating or review on your favorite platform. For more information about this podcast, series or to subscribe, please visit SmartGrid.gov.

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