

# **Making Microgrids Happen**

## **Roles and Responsibilities of Utility Procurement, Contract Execution and Project Development**

### **A Conversation with Adam Nygaard**

#### **Duke Energy Business Development Manager**

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**Interviewee: Marty Rosenberg**

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Q: Hi, and welcome to the Voices of Experience: Microgrids for Resiliency podcast. It's an initiative with the US Department of Energy's Advanced Grid Research division. The podcast captures the experience, insights, and lessons learned from utilities at the forefront of implementing emerging technologies. It explores the key points of a virtual discussion recently led by Adam Nygaard who is Business Development Manager for CHP, Microgrids, and Energy Storage Development. Hi, I'm Marty Rosenberg, an energy journalist and host of this series. The topic today will be roles and responsibilities of utility procurement, contract execution, and project development. Welcome, Adam.

A: Hi, Marty. Thanks.

Q: How are you today?

A: I'm doing great. How about yourself?

Q: Good, good. Let's launch right in. Why don't you tell us a little bit about the microgrids experience that you've had primarily North Carolina, South Carolina, Indiana, but also in Florida and pieces of Ohio and Kentucky.

A: Yeah, I'd love to. You just listed basically our regulated service

territories that Duke Energy serves. It's over 7 million customers, and we've been busy. Our team is responsible for developing energy source projects. Many times, they are microgrids which means they are able to disconnect, serve loads, and then reconnect to the bulk power system. We've been developing projects. I primarily have been responsible for our Florida energy source program. In late 2017, we received approval from the Florida Public Service Commission to develop 50 megawatts of energy storage systems, so I've been busy developing projects associated with those 50 megawatts, and alternately, we'll end up rolling out 6 projects that make up those 50 megawatts, and those will all be operational before the end of 2021.

Q: Great. Duke is known throughout the industry for generations of engineering prowess, and you have a lot of engineering capability in-house at the utility. Of course, like most utilities, it's been dedicated at building large baseload facilities over the years: coal, nuclear, major installations. Now, your business model, like many others, is pivoting to more distributed resources. What does that do in terms of the challenges of business development which is your job?

A: Yeah, you know, we do have a lot of talent internally here at Duke Energy-- talent that I'm certainly very proud to be a part of. As a vertically-integrated, regulated utility, I think we're closest to the data to understand where the problems on our grid lie, and so I think it honestly makes sense for us to be the ones that analyze that data, determine what the issue is, and then analyze different alternative solutions to solving that problem. One of those alternative solutions is energy storage systems, and so where we can find opportunities to deploy energy storage systems to solve problems on our grid, that's really what we're focused on, and you know, we're fortunate enough to have really even our own energy storage engineering team that is very knowledgeable about how batteries work, discharge rates, charge rates, etc., degradation curves of batteries, working with vendors and understanding their products, and so we do a lot of that in-

house which I do think makes us unique that we typically aren't bringing third parties in, that we have that extra piece in-house.

Q: Let's dive right in, and let's talk about developing the RFP which you've said typically takes you 2-3 months. Tell us what you're doing those 2-3 months and what you've learned about how to streamline the effort.

A: Yeah, sure. Before we developed our view, that means we've already identified the site. We've identified the problem, and we've honed in on a specific solution. At that point, we already know exactly what size battery, how the use case is, whether the energy storage system or microgrid, what the problems are that they need solved, whether we want to improve our liability, if we're also going to use it for frequency regulation services, if we want to do peak load shaving. We know in advance, kind of, what all the use cases are for that particular project. We've already got a size in mind. Our RFPs are fairly specific in that we are identifying all the specific sizes and equipment, even typically providing layouts. I think there may be other strategies about going about determining where you basically just throw out what the problem is and use an RFP process to get solutions back, but in many cases, we've already identified different alternative solutions and selected one before we go to that RFP phase. When we are spending those 2-3 months-- it's really diving into the details of the contract exhibits of what are the specific technical requirements that we are asking for which would take a couple months to pull all that information together.

Q: Is there anything unique about being a regulated utility going out with an RFP?

A: Well, at the end of the day, we're procuring, usually in this case, engineering, procurement, and construction services, so I don't think there's anything unique about us procuring those types of services and equipment. What may be unique is the level of detail of our requirements.

Q: Your getting involved in energy storage was fairly new for utilities to be involved with. How is it requiring a different skill set than RFPs that you might have done, your company might have done a decade ago?

A: Good question. I think that given our level of knowledge and education of various products that that is probably what drives us to be more specific now. I think in the past we probably would have just said, hey, we want to solve-- you know, we need this operational characteristic or this operational outcome, market, or responders to the RFP bidders, provide whatever solution can provide that ultimate outcome; whereas, now, I think we are a little more specific in what we are putting out to bid.

Q: For a project that you're developing in Florida for storage, let's say, would you like the RFP respondents to be in Florida, in the south, or do you cast it more broadly?

A: We certainly, I think, we send to bidders that are certainly outside of Florida. However, when we are evaluating the ability to execute on the projects, the either local connections or local, you know, location of a certain bidder may lend to us believing there's less risk in execution if they do have a local presence.

Q: That really speaks to the movement from the RFP to the contract execution, a period that you say takes about 7-8 months. Can you talk about what goes on during those 7-8 months?

A: Yeah, so typically, you now, we will release the RFP. We typically give approximately 6 weeks for bidders to respond. We then need another 4-6 weeks to evaluate bids. That typically will include site visits. The bidding process typically includes site visits with the bidders. You know, they need to see the sites where the projects are going to be to have a better feel for what they're costs are going to be to really give a good bid. Then, after our evaluation process, then we short list and move to 1-2 bidders where we will then go through final contract negotiations. One of the things that I think typically, you know, we're providing

drafts of those contracts up front and expecting red lines to those with their final proposals. That contract negotiation phase shouldn't take as long as it has been. The issue has been we are asking our EPC partners to purchase the batteries for us and basically asking them to negotiate procurement of the batteries on behalf of us, right? Starting that process, basically waiting to start that process until you have a finally EPC partner selected is, you know, you're just starting to clock in on that procurement process of the batteries, you know, 3-4 months later, and then that process itself takes another 3-4 months, so that's kind of why it's taking us 7-8 months is our strategy around having our EPC partners purchase the batteries for us.

Q: Are there certain types of batteries or certain manufacturers that you gravitate to that you're trying to develop a core expertise on, or do you take all comers?

A: I would say at this point, for our larger projects that are providing value to our customers, we are really only working with top-tier, tier 1 suppliers of batteries. We do work with smaller, not-tier-one suppliers on smaller deployments that are more like R&D type projects so that we can understand their products better. An example is we have a Mt. Holly facility and an alpine facility just outside of Charlotte here in North Carolina that we test different products at.

Q: Talk a little bit about the change in corporate culture that's required at Duke as you dive into these kinds of projects. Is it basically the same corporate culture Duke has been known for or are you developing new skills and new values as you put these projects together?

A: It's a lot of the same. Going through an EPC contract for a battery isn't really the same necessarily as an EPC contract for building a solar facility. There are some similarities, but I don't think there's anything that needs to change from a corporate perspective other than just educating folks that are making decisions on our risk tolerance of what batteries are and how

they operate, what's different about them, and it's really like an internal education that has to happen. You know, then everyone's learning and everybody's getting smarter about these assets kind of at the same time. That's kind of a learning curve and, I think, another reason why some of these procurements for batteries and microgrids have taken a little bit longer than maybe other assets, but we're learning, and I think we're only continuing to improve our process throughout this.

Q: As a business development manager, are you connecting with a lot of your peers at other utilities, or are they looking over your shoulder to learn from you? Are you trying to learn from them? Is everyone pretty much a cowboy on their own trying to learn what they're doing?

A: Yeah, no. We've had calls with other utilities one-on-one. That's why we participate in things like the energy storage association. You know, we meet other utilities at events like that. In Florida, I contacted FPL and TECO and some of the co-op communities down there. We certainly try to learn from each other. We're not necessarily picking up the phone every other day and calling each other, but you know, there are strong relationships there. I think at the end of the day, you know, we're neighbors. We're obviously kind of competitors, but if one project fails especially from some sort of safety perspective, it's going to hurt all of us, so in that particular category, it definitely makes sense for us to partner and share lessons learned and collaborate. Another good example is the DOE and SEPA call that we had last week which, I think, is what stimulated this discussion.

Q: Right. As we reflect on your job and as you wake up every day in these trying times, what gives you the most satisfaction about what you're doing?

A: You know, I actually started-- I went to Penn State University for Nuclear Engineering, and at the time, nuclear was going to be the newest energy source, and I loved it because it was clean. Whether you believe in climate change or not, it was a source of

electricity for that clean air, clean water, and I've kind of migrated to renewables and now battery energy storage systems, and I believe that, at the end of the day, I'm helping make a difference in the broader scheme of things that I'm working on battery energy storage systems, and sometimes paired with microgrids to provide a world that has cleaner air and clear water while also meeting the electricity stats that our society demands.

Q: Great. Thanks for talking with us today, Adam.

A: Absolutely. It's been a pleasure.

Q: Thank you for listening to the Voices of Experience: Microgrids for Resiliency podcast. For more information on the Voices of Experience initiative and to subscribe to this podcast, please visit the [SmartGrid.gov](https://www.smartgrid.gov) site. We invite you to review this podcast on your favorite podcast platform.