Duke Decarbonizing and Customer-Centricity

Conversation with Duke Energy's EVP-Energy Solutions Doug Esamann.
With an introduction by Jan Vrins of Guidehouse.

Utilities are heavily invested in a decarbonization journey as a pathway to a clean energy future for their customers and the communities they serve. More utilities are setting net-zero targets by 2050 or earlier. They will need to change their strategy, investment and divestiture plans, business and regulatory models, products and services, and operations and people to capitalize on the opportunities of their decarbonization journey.

Recently, we, meaning PUF's Steve Mitnick and Guidehouse's Jan Vrins, talked with an inspiring utility EVP about what he is doing to help customers decarbonize, the impacts, and the most promising paths to decarbonization for the companies and customers.

We heard from Duke Energy's EVP-Energy Solutions Doug Esamann, on his perspectives and tangible actions the company is taking to meet decarbonization and customers' decarbonization goals. We hope you find the conversation interesting and meaningful as you think about how you are helping your customers decarbonize for the future.

– By Jan Vrins of Guidehouse

PUF's Steve Mitnick: How is the drive to decarbonize a customer-centric strategy?

Doug Esamann: If it doesn't meet the customers' needs, then you should question why are you doing it? We have a lot of customer interactions to support this, that it is something that customers want.

Customers want to feel comfortable they're getting their energy in the most environmentally effective and conscious way possible. As they look at storms, here's a hurricane season where we will likely set a record. They're seeing disruptions and climate issues. It's clear customers want us to move forward to decarbonize just like they wanted us to reduce our environmental footprint at coal plants through the Clean Air Act.

When you think about SOx, NOx, and Mercury, they wanted us to be more of a sustainable company, and they wanted to get cleaner energy. The real issue is many believe you can do all that for the same price and at the same reliability they've come to expect today, when they flip the switch.

That's the challenge. We do need to reinvest. We do need to transition. We are doing it. When you factor in the cost side of it, we have to pay attention and also understand the price implications to customers.

That's where some of the challenges come in as you integrate cleaner technologies that may be more intermittent. We must keep an eye toward the ultimate cost to customers.

We also need to continue to educate about what it means in terms of potential risks to reliability.

Jan Vrins: Are you getting more demand for sustainable, renewable products and services from your commercial-industrial and residential customers, or both? What are you doing to help customers decarbonize? Is it providing green power only? Is it helping with energy efficiency on buildings? Is it transportation? Are you helping overseas? What are you doing with consumers to help operations reduce their carbon footprint?

Doug Esamann: It's a good distinction to think about residential, more of the mass-market customers versus the larger industrial and larger commercial customers. We're doing it in multiple ways.

With larger customers, there's a brand value to many, from continuing to promote sustainability and knowing they're going to talk to ESG investors.

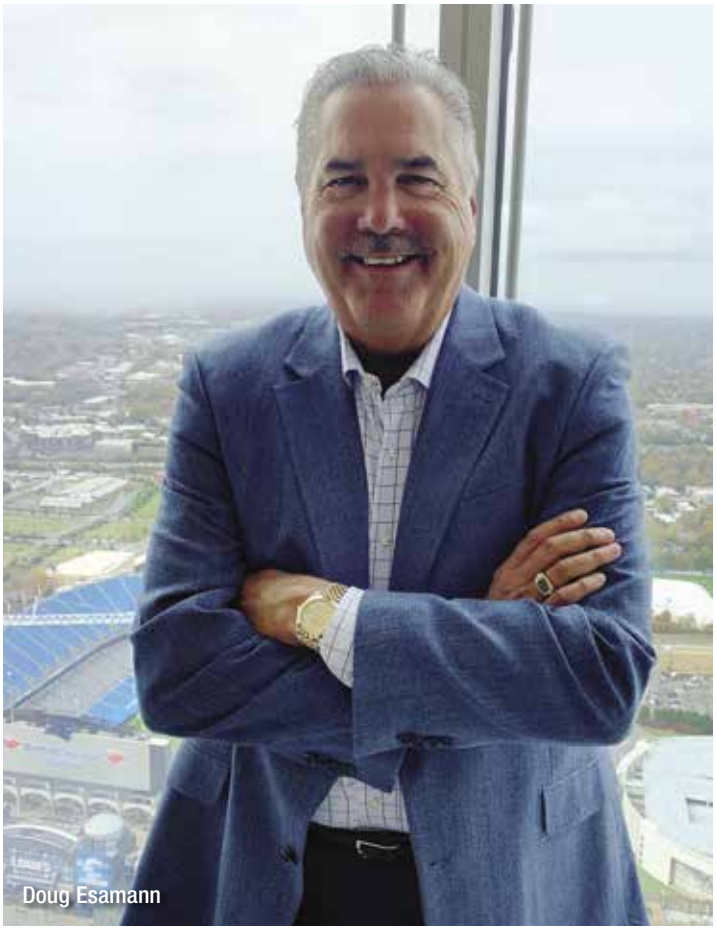
With larger customers, there's a brand value to many of them, from continuing to promote sustainability and knowing they're going to talk to ESG investors. There's a drive and a push there, that they see value in the greenness they can get from trying to demonstrate they're basically powering their entire company with green energy, even if it's not directly on the wire coming into their business that they can have an equivalency that's valuable.

The way we've seen that play out is highlighted in our commercial renewables business. In the early days, ten plus years ago, our major customers were investor owned utilities, and cooperatives et cetera, with long term contracts. They were driven by state mandates in the renewable space to comply.

That's evolved to where many of our customers are retail-oriented. Verizon is a customer of ours for example at one of our wind facilities.

Amazon is also driving some of this. Whether it's a corporate value, or it's good business value, it helps their brand. We've seen the transformation of the interest in renewable energy move from what was typically utilities to large industrials and commercial businesses.

That's one data point. We're helping customers decarbonize by promoting energy efficiency. We have one of the best programs in the southeast that has been recognized by folks who are supporting energy efficiency for customers.


Doug Esamann

The best way to be environmentally friendly, is not to have to produce it. That's important.

The best way to be environmentally friendly, is not to have to produce it. That's important. We've also taken a hard look at our fleet, what needs to happen, and transformation. Generation plants don't last forever. They become less efficient and need to be retired and replaced.

We've done that with a lot of coal generation, that was smaller and largely uncontrolled. Now, we're thinking about it for larger units that do have environmental controls installed, but at end of life. We need to transition into new generation, that's cleaner generation going forward.

We're also putting in electric charging infrastructure in each of our jurisdictions to create a basic charging network. The folks in each of the states we serve will know they can get from one side of the state to the other and can stop and charge-up in their vehicles without worrying about, do I need to have two vehicles? Do I need one to go long-distances and one to go short distances?

We are also promoting electrification through rebates and other tariffs to provide more charging options. We want customers to feel more comfortable as vehicles come to market, that they can go out and buy their next vehicle as an electric vehicle.

Jan Vrins: Are you getting requests from large customers that have their own fleets to ask, can you help us compare to electric?

Doug Esamann: Yes. We were talking to some of our larger fleet customers about electrifying their fleet and our belief that this makes economic sense, as well as the value when talking about reducing their carbon footprint. As we were talking to them, the question came up, what are you doing at Duke Energy about this, how are you planning for your adoption of electric vehicles?

The answer we had was, here's what we've done. It led us to re-think our commitment to decarbonize and electrify our fleet, which we hadn't formalized until recently.

About two months ago, we announced we intend to decarbonize our electric transportation fleet. That's a hundred percent of all small, light duty, and medium duty vehicles, and fifty percent of our heavy duty and off-road vehicles by 2030.

We'll do that with a combination of pure electric or hybrid, or some other clean fuel. We made that commitment. When you're talking to customers about doing it, you need to be able to say we're leading by example.

PUF: How do you fit in your drive to decarbonize and the aspirations of many ESG focused investors?

Doug Esamann: Whether it's analysts and investors that are looking, or sovereign funds, pension funds, they're committed to making their investments consistent with their view of environmental and social responsibility. We want to be a premier investment for them to be a part of.

We've demonstrated that we're committed on the ESG side, and about the environment. We refreshed our climate strategy last year and made our commitments to a fifty percent reduction of carbon emissions by 2030, and net zero by 2050. We're proud of that.

Having said that, we still weren't feeling as though our message was getting through to a lot of ESG related investors. In October, we held our first ESG day.

We did it virtually, with an emphasis on what we're doing to move ourselves forward along our carbon reduction path and goals we've developed. We wanted to clarify some of the perceptions about what we're doing as we focused on the coal transformation. We still own some coal assets, but our carbon intensity is among the lowest in the industry

Some investors and others still believe owning coal is problematic. Our view is we've been aggressive about retiring all our coal units. We have fifteen gigawatts of coal left. By 2030, we're


Jan Vrins

going to retire another nine to ten gigawatts. By 2030, we will have a small amount of coal remaining.

We'll replace coal with clean energy options. I want to make sure it's understood that we get it, and we're committed to our carbon reduction goals. With everything we're doing, deploying clean energy, attempting to extend the life of our nuclear plants, which are a huge source of energy in the Carolinas, all that is consistent. We wanted ESG investors and others to hear that message loud and clear from us.

Jan Vrins: How will Duke Energy be successful as you decarbonize? In the leadership, is it people? Is it having a strategy and a vision? Is it excellence in execution?

Doug Esamann: When you're a large utility, or a combination of large utilities, like we are, it's easy to look ahead and see all kinds of change and be concerned about that change.

Think of folks that work in our coal plants today, as an example. They're worried about their jobs and what's the future? Many coal plants are in rural areas. In many cases, there are large investments in some of these communities, and we support these communities.

You have to think through all that, but it's about creating excitement about the transformation, about the positives, and the opportunities to rescale. If you're an employee with a good company that's large scale, you can find a different opportunity in an area that moves things forward.

It's about embracing the need, and customer demand to decarbonize, be cleaner, and finding ways to do that. Whether it's new technology deployment, getting people focused on how do we deploy more, and how do we integrate it into our system? We are transforming the way we do things, using technology to reduce costs, and being more efficient.

From a leadership standpoint, it's imperative to create excitement about the future and doing things in a sustainable way and being part of it, that helps people get through the challenges that come with change.

Leadership also means engaging others and getting input from a number of parties to come up with and educate stakeholders about what is a potential reasonable solution. We haven't been the best at that in the past, because we had our own ideas about the way to do things. We've found engagement with others is a real secret to helping bring everybody on board and gaining the support to help move forward.

Jan Vrins: That thing was local governments?

Doug Esamann: It's local government. Communities where we have a large presence today. It's talking to them about it's okay to transition and change; maybe this site can be reused for some different types of things.

We intend to decarbonize our electric transportation fleet. That's a hundred percent by 2030 with a combination of pure electric or hybrid, or some other clean fuel.

– Doug Esamann

But it's also about each state. The governor of North Carolina has a fairly aggressive decarbonization policy in place. Engage with them and engage with regulators, because regulators can make a difference too.

Whether or not they approve what you're doing or feel like you've done a good job of bringing customers and other stakeholders along with you, engaging helps them to see the big benefits, and helps them to get to, hopefully, an approval of what we're doing, and move it forward.

All of those are important. It's probably more important now because there are large differences of opinion about the use of technologies. Natural gas is a good one.

We believe it's important to have natural gas to help this transition to where new technologies that are a hundred percent clean technologies can develop to the point where we can have the same reliability we have today.

There are many that say, you should leave that behind. Natural gas is a fossil fuel. You should leave it behind as soon as possible, along with coal. Any scenario work we've done says you could do that, but you're taking on a lot of risks, and it is also going to be more costly.

In the end, we're after the same goal of net-zero by 2050. If we can do that by not taking on too many risks, keeping reliability high through a natural gas transition, that makes sense. We listen to people, we engage them, and we show them what different

portfolios look like, so they can understand what it is they're embracing when you look from a total perspective.

Jan Vrins: We need a transition for natural gas to a renewable gas like hydrogen. Many systems around the world will need a renewable gas. We can't get there with a hundred percent electrification and battery storage. It's not going to work. That's a discussion for a different day.

Doug Esamann: I agree. It's a complex and deep topic, but it is an important one because sometimes, folks may be strident in terms of their view of natural gas, for instance, as a fossil fuel.

Every scenario, every analysis we've done says it's important to bridge, to get to these other technologies because they have to come down the cost curve. They have to prove they can, in the case of batteries for instance, be deployed over longer terms, as opposed to short-duration discharges.

I'm confident R&D will help us get there. But why take that risk today and throw yourself into those situations that we know we can solve by keeping gas around and making it a manageable, less risky transition?

PUF: What are the most promising paths?

Doug Esamann: As we look to the near term goal of fifty percent reduction by 2030, at the end of 2019, we're at thirty-nine percent reduction from 2005 levels. Much of the success to-date has been by replacing coal with gas and renewables.

We've deployed about nine gigawatts of renewables either in the commercial space or the regulated space on our systems. We'll double that in the next five years. Then we'll probably put another nine gigawatts on and triple by 2030.

We'll bring in some natural gas to offset some of the coal we're retiring and move our carbon footprint down through technologies that we are currently deploying and will continue to do so.

On top of that, to get from fifty percent reduction to net-zero by 2050, that's much like any other situation. When you get down to those levels, you get into more expensive technologies that need to be proven out from an R&D standpoint.

It's important for EPRI and others through collaborative efforts to move these technologies forward. We see things like improved, long-duration battery storage. You've got to get to long-duration battery storage from peak to peak, or day to day or week to week.

We see the continuation of nuclear, through extending the licenses of our nuclear plants today as important. It makes up a significant amount of the carbon-free generation in the Carolinas, and we want to keep that.

We want to look at new technologies. Small modular reactors, and other technologies around that are important. Hydrogen can potentially play an important role.

It's expensive when you think about the cost to produce hydrogen, in particular the cost of energy it takes to produce it. The ability to bring that down the cost scale will be important.

We're committed to our carbon reduction goals. With everything we're doing, deploying clean energy, attempting to extend the life of our nuclear plants.

Carbon capture is a technology that we should continue to explore through DOE and others, and look to ways we can make carbon capture sequestration and utilization more viable than what it appears to be today.

Jan Vrins: What is it, twenty-seven gigawatts of renewables you're planning to build? With the excess renewables you can use that as your marginal cost to produce hydrogen and electrolyzer, which is the biggest cost to produce free hydrogen, and will probably follow the same price curves we've seen with wind, solar, and battery storage.

Doug Esamann: We see that as a huge opportunity. We think about green hydrogen coming from carbon-free generation. The existence of the size of our nuclear fleet is extremely interesting to us in terms of our ability to possibly create hydrogen in a more cost-effective way. PUF

NYPA VP Patricia Lombardi on Safety and Leadership

Excerpted from December 2019 PUF: "There's a couple of things that you want to remember. This is a dangerous industry. There is always the risk of injury or even fatality. It's understanding that you're in a dangerous business. It's understanding that safety is always first and foremost. When things don't go right, and sometimes they don't, I think two things. You hope that the people who are working for you and with you, that you've helped them along the way to know how to react. It's about having a relationship where you can be open and honest about what happened. You don't want people hiding things or covering things because they don't feel comfortable. Be able to admit that something went wrong. Take accountability. I don't think anybody in this room has never made a mistake. It happens and that's how you grow and learn. I can say I've learned the hard way, on many occasions, and it just makes you better. But you have to remember, especially when leading people, that accountability is important. It's saying, we're not going to punish you, but you've got to own up to it. Then it's knowing how to react, especially when it could be a stressful situation that needs a smart and quick decision. Did we give people the right tools to make those quick decisions in that moment without having to check with me or check with Andrea [Luongo]? Can they make a good decision when it's important?"