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Voice of the Electric Transmission Industry

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WOMEN EXECUTIVES ON LEADERSHIP IN THE TRANSMISSION BIZ

If you think electric transmission and grid infrastructure are still male domains, think again. We asked several women leaders in WIRES member firms to give us their special perspectives on their careers and their industry. Our responders are:

Lisa Barton, Executive Vice President, AEP Transmission, President & Chief Operating Officer, AEP Transmission Holding Company

Nina Plaushin, Vice President, Regulatory, Federal Affairs and Communications, ITC

Teresa Mogensen, Senior Vice President, Transmission, Xcel Energy, President, Xcel Energy Transco

Kathy Shea, President of Transmission, Eversource

Priti Patel, Vice President & Chief Transmission Officer, Great River Energy

Geisha Williams, CEO & President, PG&E Corporation

Q: What are the biggest challenges facing the modern electric power business that you, as a person who can engineer change, relish tackling?

Lisa Barton: The grid is an amazing network, consisting of assets built over the past century that work together as an integrated system providing an incredible degree of reliability. Technology is changing at a rapid rate around this system of long-lived assets, and we need to integrate these new technologies to enhance the efficiency of the over-all system and minimize operating

costs. Augmented reality, drones, remote monitoring and data analytics can help us operate the system more efficiently, cost effectively and safely.

Teresa Mogensen: My favorite challenges are those that are large, multi-dimensional, and require new thinking, insights, and innovation to address. I like issues where good solutions move the industry forward, make sense, and can provide a win-win for multiple sides. As an engineer by background, it's a bonus to me if they have a technical dimension as well! Right now the biggest challenge I'm working on is grid evolution in response to resource evolution, both utility scale and distributed, and the associated technical, operational, market, educational, policy, and economic dimensions. The grid can ultimately provide desired options and choices reliably, but not without a lot of strategic thinking and careful, phased execution.

Priti Patel: The great thing about the U.S. electric power industry is that every challenge spurs a collaborative and creative solution-making thought partnership locally, regionally, and nationally. So, I view every challenge we face as an opportunity to bring even greater value to Great River Energy's member cooperatives. As we move more toward renewable energy resources dominating our system, while then being complemented by other generation sources, there are technical and operational challenges to the transmission grid that will need to be addressed. And, while not oftentimes intuitive, as more diverse distributed energy resources (DER) come online, there will continue to be a need to maintain and improve the transmission infrastructure to ensure reliability. With a grid that has more diverse DER, operators of both the transmission and distribution systems will need to better coordinate and communicate. For a G&T that does not own distribution, we will need to work closely with our distribution cooperative members to meet the expectations of our members and their customers. Additionally, with the growing interest in DER and the greater reliance on the transmission system, it is important that we tackle aging infrastructure and systematically replace and upgrade existing transmission facilities. In the end, we need to continuously look through the eyes of our customers and make sure that we can meet their needs.

Nina Plaushin: The biggest challenges we see as a transmission system operator are related to generation changes. We are seeing a shift in in the generation mix to incorporate more renewable energy sources like wind and solar as well as the development and implementation of new technologies like distributed energy resources and energy storage. All of these technologies must work in coordination with the existing generation, transmission and distribution infrastructure to deliver safe, reliable electricity throughout the nation. One aspect that will drive the integration of new technologies is effective transmission planning that takes a comprehensive view of the system so robust plans can be developed to provide the flexibility required for a changing bulk electric system. The goal is to keep up with new demands being placed on the grid and to address new security threats, generation diversity, challenges with planning across "seams," and optionality for connecting new technologies.

Kathy Shea: The electricity transmission delivery system is one of the most critical types of infrastructure in the world, enabling all other 21st century electric needs. Securing America's energy future requires us all to work together toward achieving a best-in-class electric system that consistently delivers the highest reliability and resiliency, while providing customers with electricity from an affordable, diverse, and environmentally sensitive fuel mix. One of our biggest challenges is ensuring we make appropriate investments in transmission that facilitates resource development and access, and is the needed insurance against unforeseen but inevitable market changes and system challenges. Eversource has been focused on providing a best-in-class transmission system as we continue to meet critical reliability needs of the New England region.

Geisha Williams: Energy companies like PG&E are at the crossroads of incredible change, driven by new technology, clean energy policies and changes in what consumers want. As a result, we have to adapt and innovate more than ever. We have to shift from being utilities to being solutions companies for our customers. I'm excited every day by the challenge of building a culture and an organization that will allow us to lead that transformation and be successful. That's energizing to me as a leader.

Q: What opportunities to rise as professionals, managers and executives does the electric power industry, and the transmission sector in particular, offer women?

Lisa Barton: After 30 years in this business, I continue to wake up every day and feel an incredible sense of pride to work in an industry that ensures that the lights stay on 24/7. Electricity serves as the foundation of modern society. The aftermath of recent storms is an all-too-current reminder how close we can be as a society to chaos. The grid serves as a foundation to modern society and it is an exciting industry that offers opportunities in a wide range of areas, particularly for women. We are seeing more and more women joining our ranks, whether in finance, accounting, right-of-way management, environmental, engineering, and project management to name a few areas. It's a great business and diversity in our workforce makes us stronger and more agile for whatever challenges lay ahead.

Teresa Mogensen: I've always liked the electric power industry because it offers so many different areas to engage in, and ability to move between them for growth. I highly encourage people to get broad, cross-functional experiences because the knowledge and relationships you gain provide great context and increase your value and capability as you move through. It's also meaningful to be contributing to something that is so critical to the economic and literal health of everyone in our society. The transmission sector in particular offers many opportunities because it's "newer" as a major, multi-dimensional function with broad impact. With so many changes afoot, those with skill and initiative can find many opportunities.

Priti Patel: The electric power industry is replete with opportunities for women. The University of Minnesota reported last year an all-time high percentage of female graduate and undergraduate students in their College of Science and Engineering. The electric power industry would be a great industry for those women to consider. And, while you may need very specific expertise for specific jobs in energy, there are so many opportunities in transmission and electricity, regardless of your background. Think finance, public affairs, human resources, legal, and so on. All of those areas are not only relevant to the organization you work in, but also to the area of transmission. Just start. Then use the industry as a jungle gym and obtain cross-functional experiences. As an example, I have a senior leadership role in transmission and I am not an engineer. I am an attorney who found herself following different paths through the industry in a variety of functions and landing in a senior operations role at a G & T cooperative. If you take some risks with your career, you can end up in amazing places in transmission, or really anywhere in the electric industry. Go after different experiences. And most importantly, go after what you want. If you see something, there is probably a path to get there.

Nina Plaushin: There has been a strong female presence in the functional areas that I have worked in throughout the electric power industry including external affairs, communications, federal affairs and regulatory. However, as an industry, there is still work to do to fully integrate women

into executive management positions. At ITC, we are a success story in this category. Women represent nearly 20% of our engineers and 40% of our leadership, and we are fortunate to be led by our President and CEO Linda Apsey, who has been an integral part of our executive management team since our company's inception, serving as a strong role model for all women at ITC, in the electric power industry and in all STEM fields. Over the years, we have been involved in a number of community and industry initiatives to help raise interest in STEM careers for young women through our Women in Engineering group, who lead by example as women in science, technology, engineering and mathematics positions at ITC.

Kathy Shea: The energy industry is replete with opportunities and challenges. It is a great time to be a professional in this field where there are many evolving initiatives ahead of us. Whether in the policy arena or in a more technical area of the industry, professionals will learn to deal with new challenges and will be part of the policy and engineering proposals that shape our nation's energy future. Women have an opportunity to be a part of this industry, whether they bring their expertise as engineers, attorneys or business people. I have learned a lot in this industry and recommend it to others. As the energy industry continues to evolve, I think it's a great time for young women, and men, to jump in.

Geisha Williams: Thankfully leadership opportunities for women in the energy industry have increased significantly in the past 20 years. I believe that women can rise and be successful in any area of our business they want. That said, we need to do more to actively encourage women to consider careers in leadership, and we need to provide support. In too many instances women who aspire to these roles still have to overcome real barriers around what some view as traditional roles and characteristics for women. There are also barriers like poor support for working mothers. So there's more work to do.

Q: How do you see the operations and regulation of the electric grid evolving in the next few decades, based on your company's priorities and developments in your region and the economy generally?

Lisa Barton: The grid is being asked to be even more dynamic and responsive than it ever has been in the past. As generation sources become more diversified, as technologies are integrated into the grid, its operations become more complex. Cyber and physical security challenges add yet another layer of complexity. The grid and its operators will need to be more dynamic and able to respond to changing circumstances. Similarly, I believe regulators will be looking for the utilities to be creative in continuing to meet customer demands. Regulators and utilities will need to work collaboratively to ensure that the grid continues to meet the ever-changing needs of customers and society as a whole.

Teresa Mogensen: I believe the grid is critical to "making it all work together". With many different resource models and providers, along with many different public policies and regulation approaches, it falls to the grid to integrate everything and ensure reliable delivery and security. The grid, including both transmission and distribution, also provides the platform to harvest data and build many new functions that offer both choices and insights. The grid must also abide by the laws of physics even when people don't want to acknowledge that. We must educate and advocate to ensure that such an important and fundamental platform is understood, regulated and operated appropriately.

Priti Patel: The operations of the electric grid will need to adapt to the type of innovation and energy choices that our customers and policymakers want to see in our industry. At Great River Energy, we have been working with our members to better understand that future and making changes to achieve value from that future. As we anticipate a future of both centralized and distributed generation sources, dispatchable and non-dispatchable resources, energy storage, various microgrid operations, and a two-way use of the grid, the electric grid will need to adjust to thosechanges and be more flexible and responsive. This will require tighter and more integrated coordination between the transmission and distribution systems. Engaging in technology changes, such as platforms that allow us to better integrate advanced data analytics into real-time operations, broad-based communications systems, and better visibility from transmission to see distributed resources and understand impacts to the grid, will provide value to our members and their customers. Operationally, we will need to balance supply and demand in a two-directional manner and seamlessly integrate generation and storage with end use in a flexible manner.

Nina Plaushin: We need to change our mindset about how we plan the grid. There will continue to be an increased focus on resiliency and flexibility. Our technology-based, energy-intensive society continues to require that the grid 'be there' to support the increasing demands placed on it. ITC is in a unique position because we focus solely on electric infrastructure solutions – so you'll see our focus continue to be on regional solutions that provide benefits across state lines, the incorporation of storage solutions that support the grid by better managing intermittent, variable resources. To get there, this means we have to work together with federal and state regulators, fellow utilities and other industry stakeholders, we need to bring forth constructive ways to improve regulatory processes and promote investment through appropriate planning to maximize value for customers. We need to start now in order to ensure we have the infrastructure in place that will support the needs.

Kathy Shea: Transmission must be an integral part of the dialogue on the federal and state policies that will guide our nation's energy future. Transmission will bring us resiliency to deal with challenges of severe weather, outages or disruptions, fuel security, unexpected load growth and retirements. A strong transmission system also allows our nation flexibility in accessing new, environmentally friendly resources where and when they are needed, and gives us the ability to make the right decisions for affordability and environmental concerns. Transmission will work with new technologies to meet the electrified 21st century. We know that modernizing our most important national infrastructure – our backbone power grid – requires us to collaborate with regulators, customers and other stakeholders. We are up to the challenge.

Geisha Williams: The electric grid will continue to be essential — even more than today in fact— as we work to achieve long-term climate and clean energy goals. But it's not going be your grandfather's power grid that just moves electrons from point A to point B. It's the platform for integrating everything from more renewables to electric vehicles, storage and other growing technologies. As a result the grid needs to become increasingly dynamic and flexible, with smart devices and data playing a bigger and bigger role in managing energy flows to optimize the clean energy benefits along with reliability and efficiency. We're investing billions as an industry to make this a reality.

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