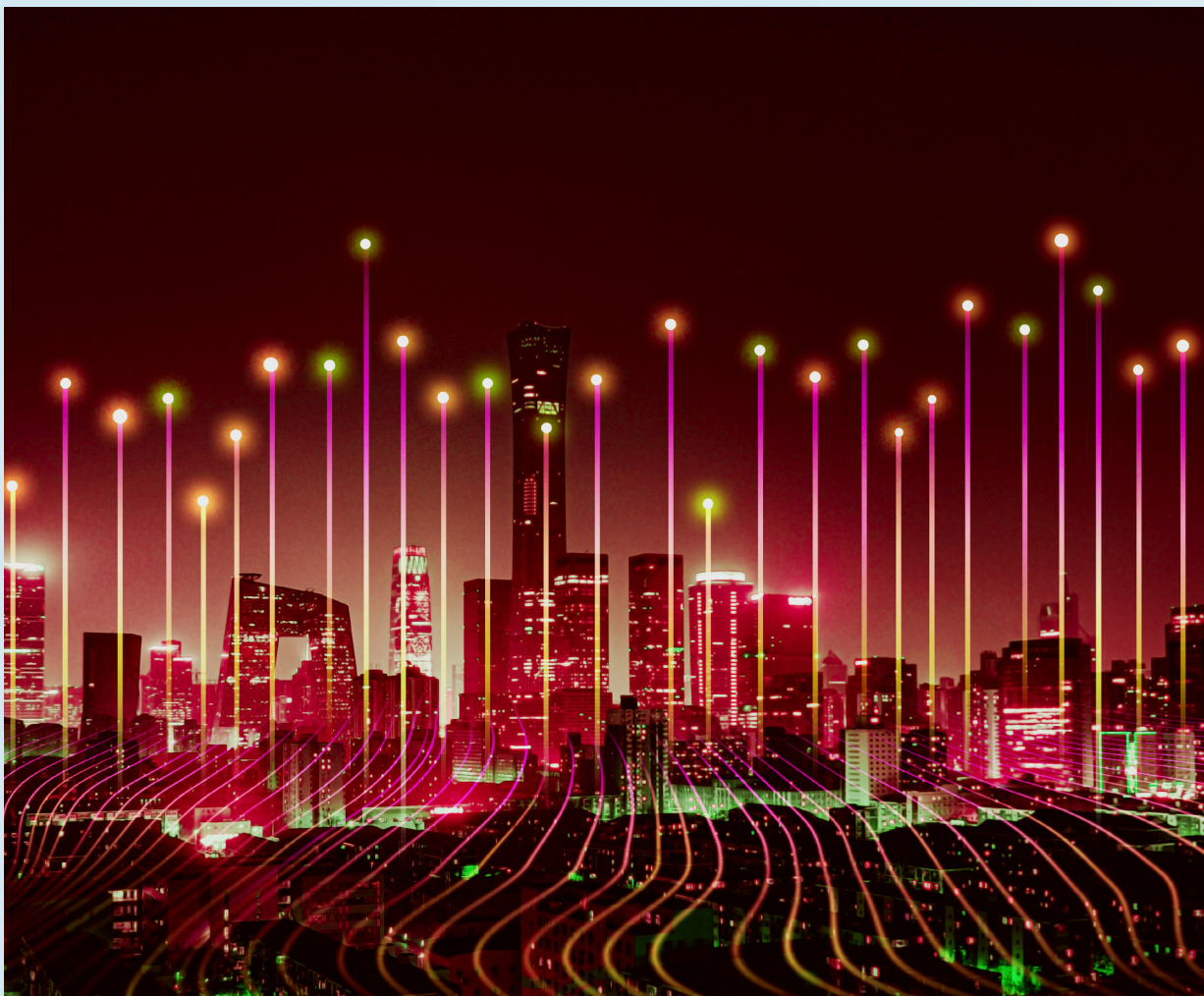


## Editorial Report: DISTRIBUTECH International 2025

At the recent DISTRIBUTECH International 2025 Conference, we met with a number of subject matter experts and key thought leaders who discussed the unprecedented transformation currently sweeping the power industry. As Bala Vinayagam, President of Qualitrol, puts it, this is the "best time to be in this industry, and for the foreseeable future, it's a high-growth industry". The same theme was shared by all of the other 50+ professionals we spoke with at the conference. There is an overwhelming agreement that our normally staid and often static industry has become very dynamic, changing to meet the demands of a changing world.

- **Data Centers:** The explosion of data centers, particularly those supporting AI that require immense amounts of power (sometimes measured in gigawatts, comparable to small cities). Alan Swade, GM for the North American commercial team for GE Vernova's Grid Solutions Power Transmission business, observed that this demand "seems like it wants to stick around...for a 10-, 15-, or even 20-year run" globally, but especially in the US. AI is noted by Alan Swade as "a big thing that we didn't have our eye on as how much demand that was going to drive".



A central theme is the sudden and significant spur in load growth, following decades of little to no growth. The surge is driven by several factors, including:

- **Electrification of Everything:** From electric vehicles to buildings, the general trend is electrifying everything.
- **Re-industrialization/Onshoring:** Factories and manufacturing require significant power.

This rapid increase in demand, coupled with a shift toward renewables like wind and solar, is putting immense stress on existing electrical infrastructure and generation capacity.

Bala Vinayagam indicates a need to "double the electrical infrastructure in the US - which took almost 80 years to build - in the next 15 to 20 years". Marcos Carreras of Dynamic Ratings notes similar increasing demand and need for cleaner, reliable energy in Latin America, driven by industry and people.

Some other key infrastructure challenges discussed at the conference include:

- **Transmission Constraints:** Getting more power from point A to point B is essential, but transmission lines are often at capacity, and building new ones can be challenging. Upgrades to existing networks (345 kV, 500 kV) and the potential emergence of a 765 kV backbone are needed to move more power. Alan Swade noted the importance of placing substations at the intersection of high-speed fiber and transmission lines, as "you need power, and you need to move the data". Marcos Carreras highlighted transmission as critical in Latin America, where energy resources are often located far from demand centers.
- **Supply Chain Management and Subject Matter Expertise:** The industry faces challenges with talent (both in terms of an aging workforce and training new personnel) and supply chain issues, leading to long lead times for critical equipment like power transformers (three to five years out) and bushings (two years).

In response to these challenges, the industry is undergoing a significant shift in approach. Utilities, traditionally insular, are becoming "more open to at least hear what suppliers have to offer", according to Brian Nelson, who manages the renewable energy segment for ABB in the United States. The openness marks a shift from transactional, process-based interactions to outcome-based solutions.

John Gounaris, Global VP of Marketing for G&W Electric, similarly states customers are saying, "Here's our problem... Come in and help us design the solution". Suppliers now need to listen to and understand the unprecedented problems utilities are facing, leading to the need for suppliers to focus on listening first.

Nearly every supplier we met with had the same conclusion, their approach to the industry is much more collaborative, and includes open discussions with other suppliers, either currently working with the customer or who the utility is looking at to provide a specific solution. It is not quite open architecture, but utilities are clearly trying to avoid one supplier dominating their system. Open platforms seem to be the future, allowing others easier access.



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According to Claudia Cosoreanu, Chief Technology Officer at GE Vernova "digitalization is key to solving these challenges". It encompasses:



*Claudia Cosoreanu, Chief Technology Officer at GE Vernova, at DTECH 2025*

- **Instrumentation and Data Collection:** Adding sensors to the grid for better visibility. Marcos Carreras mentioned different ways of collecting data from transformers (temperature, flow, gasses, partial discharge) and other assets (bushings, LTCs, tanks, hotspots).
- **Connectivity:** Reliable transmission of data to control centers.
- **Analytics and AI:** Using AI/ML to understand



network behavior, predict load, and recommendations to act. While some might see it as a hype, Alan Swade points out AI's growing importance: "AI is real", and not just a hype for the industry. Bala Vinayagam agrees, stating AI "now kind of unleashes new avenues" for pattern recognition and analytics. Marcos Carreras notes Dynamic Ratings uses AI for processing data faster and predicting what might happen.

- **Data Management:** Marco Simiano, GridBeats™ Product Portfolio Executive for GE Vernova's Grid Solutions business, and Bala Vinayagam both note that utilities often "drown on data but starve on analytics". They suggest gathering siloed data into consistent data lakes for fusion and cross-correlation. Marcos Carreras mentions Dynamic Ratings' approach includes data management and diagnosis.
- **Condition Monitoring:** Implementing comprehensive monitoring of electrical assets

(like transformers, for example) extend their life and manage risk. This provides actionable intelligence for various personnel (planners, operators, and maintenance). Bala Vinayagam notes that customers want to know the outcome, such as whether a transformer can be loaded more and what will happen to its life if it is. Deia Bayoumi, SVP of Marketing & Sales for Transformer Digital and Components at Hitachi, highlights comprehensive condition monitoring as "needing to shift from minimal to comprehensive for utilities".

- **Digital Twins:** Bala Vinayagam describes modeling the physical behavior of assets over time based on data to understand aging and guide actions, representing the difference between the "as-designed system and... as-operated system". He sees AI unleashing new avenues for digital twin technology.

Reliability and resilience are critical outcomes the industry is seeking. Reliability is about keeping the power on, while resilience is about "getting

back up when it does [go down] for whatever happens to it", as defined by Brian Nelson. Deia Bayoumi acknowledges that events will happen, and the focus is to "manage the risk" by reducing the frequency and impact of events and speeding up recovery time. Technologies such as intelligent devices, connected systems, and even augmented reality are pointed out as tools to enhance resilience. Brian Nelson highlights microgrids as a way to provide reliability and resilience, especially for critical customers. Marco Simiano described GE Vernova's GridBeats™ portfolio aiding resilience by allowing autonomous control of sections of the grid during outages. Marcos Carreras underlined that providing resilient power is absolutely critical in Latin America due to extreme weather conditions and other events.

The conference emphasized the urgent need for speed and scalability in deploying new systems. Projects need to be completed much faster than traditionally done. Solutions also need to be affordable, as stressed by John Gounaris, and "the investment of the customer needs to be into future-proof solutions", designed with flexibility to adapt to changing grid dynamics, according to Marco Simiano. Given the long lead times for new equipment, extending the life of existing assets through condition-based maintenance and providing solutions that allow for retrofits to add intelligence and communications to existing equipment are crucial approaches.



**The power industry is navigating an era of unprecedented load growth and energy mix change by embracing digitalization, analytics, AI, and collaboration.**

*At DISTRIBUTECH 2025, key solutions and technologies discussed included a range of innovations aimed at modernizing the energy grid:*

- Substation equipment and digital substation solutions.
- Software-defined automation and grid digitalization platforms.
- Condition monitoring and diagnostic solutions for electrical assets, including diagnostic-as-a-service offerings.
- Advanced sensors, communications, and analytics for improving asset capability.

- Modular equipment designs that facilitate affordability and flexibility.
- Microgrid solutions, potentially including DC microgrids.
- Services for transformer and substation maintenance, life extension, and recovery.

DISTRIBUTECH 2025 made one thing clear: the power industry is facing a pivotal moment. As it grapples with unprecedented load growth and rapidly changing energy mix, utilities and innovators are turning to digitalization, advanced analytics and scalable energy systems - while also tackling challenges around infrastructure, supply chains, and workforce development. And speed and affordability are no longer optional - they are essential. We want to thank all of the expert thought leaders who we interviewed at the event, particularly those who contributed to this report.

To view the full interviews with these leaders and more, click on this [link](#).

#### The Editorial Team

