

# Day 1

JUNE 14



**UTC TELECOM  
& TECHNOLOGY**

**JUNE 14-16, 2022**

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## **Training: Testing Aspects of Pseudo-Wire Interfaces over Packet Transport**

Electrical utilities adoption of packet based transport for mission critical communications is accelerating at an increasing rate. While many of the aspects of testing legacy circuits are still valid for pseudo-wire applications, there are some parameters that are particularly critical for the new network topologies and which had not been widely adopted in the past. Additionally, with TDM no longer available the traditional methods for transporting timing over the network can no longer be leveraged. Whether it is SyncE, 1588v2 or both that are deployed for synchronization and timing, this introduces additional complexity and testing requirements.

This session will present and discuss some of the best practices and testing aspects that ensure pseudo-wire networks and synchronization services meet the necessary performance criteria for mission critical applications. It will cover end to end performance, timing and synchronization as well as packet based testing concepts.

## **Training-Utility Telecommunications 101**

Are you new to the field of utility telecommunications? Or possibly have Information Communications Technology (ICT) experience but are new to the utility environment? This seminar will give you an overview of how electric, gas and water utilities are using ICT systems today plus a look at some possibilities for the future.

Topics will cover a wide range of applications – including a focus on Smart Grids and their evolving support of hybrid energy sources, storage and their interface with the customer. Emphasis will be placed on applications unique to the utility industry, digital transmission technology, optical and wireless systems and their secure integration with the Internet.

## **Spectrum Availability and RF Infrastructure Summit**

This summit will focus on issues related to spectrum availability and access to utility infrastructure including fiber leasing, supply chain and RF safety. Topics being considered include: the current state of spectrum opportunities and spectrum issues; preliminary results of UTC's fiber leasing survey; use case presentations; grounding; tower safety; RF safety; small cell design; and updated NESC (National Electrical Safety Code) for small cells.

## **Utility Cybersecurity Summit: Advanced Persistent Threats**

This year's Security Summit will be heavy on case studies to examine how APTs succeed in spite of the protections that are in place. The objective is that all attendees gain additional insights in how to better mitigate the risks presented by APTs. The session outline: What are APTs? Who and what are being tracked? How do attackers get in? Case Study – including MITRE attack framework and cyber kill chain as a framework How do you find the attacks? Monitoring in OT environments Threat Hunting UEBA (User & Endpoint Behavioral Analysis) Lessons Learned from past incidents: What do you wish you'd had in place? What should be in the incident playbook? What tools would have helped? How does forensics in OT even work?

## **Summit-Utility-Integrations-Making the-Journey**

The 3-hour UTC Integration Summit will examine how three member utilities executed cross-utility integration projects, with lessons learned and key takeaways from each - technical and cultural.

Specific case studies:

CenterPoint Energy: Telecoms Transformation – Legacy to the Future

Nashville Electric Service: The Enterprise IT Overhaul

Nebraska Public Power District: Operations Technology Integration – How Ethernet Killed the SONET Star

## **Broadband-Summit**

The Broadband Summit provides insights and experience from utilities who are deploying or considering deploying broadband networks and offering broadband services. The Summit will feature perspectives from various different phases of deployment, including construction/initial stages of deployment; operation and maintenance of broadband networks; and expansion of the network and services, as well as marketing and customer service issues. UTC is excited to support utility broadband and the Summit is brought to you by the UTC Utilities Broadband Committee.

# Day 2

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## Risk and Reward

Building new infrastructure or a new business has risk. Building infrastructure to utilize new technologies triggers a review of business models. Provide alternatives and highlight risks while mitigating the risks. This panel review building an LTE network for a field area network and the frequency chosen. Keeping the LTE network for internal use or lease out space on the network? What was the cost of investment to do the initiative? The staff to manage and maintain the new service going forward. This panel will also discuss the risk and reward of providing a middle mile service or becoming Internet service provider. This is a philosophical discussion of why these utilities took the risk to receive the reward.

## The Importance of Grid-Wide Time Synchronization

Don't Take a Good Time For Granted! Substation synchronization tends to be an afterthought. This is changing with the advent of digital substations. Grid applications, including synchrophasor and GOOSE, demand a common time reference 24 x 7 to co-ordinate system control and operations ranging from protection to automation to measurement and analysis. Accordingly, operators need to plan for accurate, reliable time distribution across the grid. This session will 1) explain the fundamentals of the IEEE1588 technology and its use to complement GNSS/GPS system to distribute time synchronization 2) explore the network requirement for the IEEE1588 hierarchy 3) discuss a synchronization architecture blueprint.

## Using Technology to Maximize Data Collection and Increase System Reliability & Resiliency

New technologies and tools are helping utilities better understand the condition of their infrastructure. Data collection and imaging technology using LiDAR and image recognition can produce high-accuracy maps efficiently. The collected data can be combined with back office pole loading and engineering software to accurately provide invaluable pole plant models and vegetation management assessments. This session provides an overview of LIDAR and includes a case study on how one utility used Imaging technology to manage their infrastructure requirements.

## Satellite Telecommunications on your Grid

Being Your Own Satellite System Provider: Lessons Learned After a Year of Providing Services to Substations. After building two satellite earth terminals and connecting more than 50 remote substation, Idaho Power has gained significant experience running MPLS over a satellite system for over a year. This system does NOT use a service provider, instead Idaho Power runs the entire system with the exception of the satellite itself in space. Join us to learn why and how the system was put together and the benefits reaped. Substation Satellite - Follow-Up from 2019 Business Case with Current Operation and Lessons Learned Idaho Power presented a business case for an internally owned and operated satellite transport system to replace costly telephone company leased substation services in 2019. The project is currently in wrapping up construction, this presentation will cover the details of the design, projected vs. actual costs pilot, O&M savings, as well as lessons learned.

## How Technology Fosters Safety

As the world continues to evolve and change, technology is at the forefront of driving business forward. This includes driving better safety best practices. This session will walk through use cases of how technology is fostering safety, including conducting virtual site visits, utilizing 3D scanning and wearable technology, and GIS integration.

## Managing your Subscribers the Cloud Way What is Cloud Managed Wi-Fi

Ensuring an excellent online experience starts with a robust in-home Wi-Fi router system. Wi-Fi routers offer fast, reliable performance and extended coverage to the growing array of connected devices in subscribers' homes. Remote management has always been a standard for any Internet Provider offering Broadband services. Solutions like TR-069 have really been the hallmark in our industry however, the cost and maintenance of TR-069 may seem like a daunting task when managing Wi-Fi Routers. In recent years, hosted, cloud-based solutions have streamlined the subscriber's Wi-Fi experience while reducing the provider's support resources. How to provide an excellent online experience. Effortlessly onboarding new products Ease of use with end-user facing apps Protection within the home from outside online threats Remote management with instant customer care and data analytics

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## Why Build a Broadband Network

We will explore the critical elements of a broadband network and how they are employed to support a diverse and rapidly growing user base. New technologies make it possible to keep initial costs low while enabling scalability when the need arises in the future, avoiding expensive forklift upgrades and maintenance outages.

## Case Study Underground Air Blown Fiber Cables

Exelon achieved faster, easier, and lower cost underground fiber cable installations using air-blown microcables in microducts as opposed to pulling traditional loose tube cables in standard conduit. This presentation will review the basics of air blown installations, and the successes and challenges of air blown technology from various Exelon trials. Microcables are miniaturized stranded loose tube cables engineered for air blown installations and high fiber densities. These cables can be half the size and weight of traditional loose tube cables and can achieve cable installation speeds between 150 – 400 ft/min in a microduct, while also reducing overall project costs. Exelon piloted a few scenarios: an underground run into a power plant following the aerial transition from ADSS, an underground section transitioning from aerial OPGW into a substation control building, and underground general purpose fiber deployment throughout the Washington, DC area.

## OPGW Grounding techniques for safe splicing

OPGW fiber presents special challenges in order to safely ground the fiber prior to splicing or maintenance operations. This session will discuss and benchmark some of the safety considerations when working on OPGW fiber and the grounding and bonding requirements necessary to maintain a safe work environment for the fiber splicer. The session will also discuss the necessary PPE and equipment to ground the OPGW fiber and the proper installations of grounds and bonds on the OPGW fiber cables.

## Funding Mechanics, Procedures and Process

Multiple programs are geared to launch at the federal and state levels to spur investment in broadband and other infrastructure investment. This session will take a look under the hood to examine the jurisdictions and procedures that are involved. It will also examine what providers can expect and what they can do to prepare.

## Regulatory Update on FCC Wireless Infrastructure Siting Policy

The FCC is constantly updating its rules to streamline the deployment of next generation wireless networks and eliminate state and local regulatory barriers to the deployment of wireless infrastructure. At the same time, the FCC has also imposed some new obligations on licensees and courts have stepped in to limit the FCC's authority. As such, it can be difficult for utilities and other critical infrastructure entities to clearly understand the rules of the road so that they can develop appropriate compliance processes. This presentation will provide a summary of the FCC's rules for pre-construction environmental and historic property review required for deployment of wireless facilities by utilities. We will also discuss the FCC's ongoing efforts to further reduce the regulatory burdens.

## Seizing the Moment Unprecedented Funding Opportunities in 2022

With billions of infrastructure dollars earmarked for closing the Digital Divide, electric cooperatives have a never-before-seen opportunity to tap into state and federal funding to bring fiber broadband to the members and communities they serve. This session, led by Conexon Partner and former FCC chief of strategy Jonathan Chambers, offers actionable insights on navigating 2022 funding opportunities, including the infrastructure bill and state-driven American Rescue Act funds. Chambers will share his insider advice to illustrate the steps and activities necessary to secure funding to power individual and collective co-op projects.

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## Dual Frequency Private 4G and 5G Networks

Utilities are increasingly building dedicated networks to support a wide range of monitoring, control and communications functions. Private 4G network operators now have the option of following the established examples of commercial wireless carriers by deploying multi-frequency networks. Typically, such networks involve the use of a sub 1 GHz band for coverage and at least one midband frequency for extra capacity in areas where higher demand exists. Private network operators may deploy economical and long-range NB-IoT or Cat-M1 for monitoring and control functions that they need throughout their areas of operation and limit broadband deployments to areas where the extra capacity is required. This discussion will outline the relevant bands that are appropriate for such dual-frequency private networks. The relative advantages and disadvantages of dual-frequency private networks will be examined including spectrum availability, device ecosystem status and system cost factors.

## The State of the 6 GHz Microwave Spectrum

Two years after the FCC approved the highly controversial rule change that opened the 6 GHz microwave band to unlicensed use, licensed microwave incumbents are left to fend for themselves against interference from Wi-Fi 6E as these unlicensed devices continue to gain market acceptance. Real-world testing performed by the presenters confirmed the concerns of many, that FCC-certified Low Power Indoor (LPI) devices will harmfully interfere with licensed 6 GHz microwave networks. Are 6E device deployments tracking with the proponents' forecast of 958 million of these networks in the continental US by 2025? Are incumbents seeing the impact to their systems? This presentation will address these questions and offer mitigation strategies that are currently being implemented or considered by utility industry members. Presenters will also provide an update on outdoor Standard Power Wi-Fi 6E device and Automatic Frequency Control (AFC) standards, development, and deployment timelines.

## The Value of 4G LTE CAT M/NB-IoT Small Cell in Utility-Grade Private Networks

Utilities have been aggressively purchasing licensed spectrum (CBRS, 700MHz, 900MHz, etc) to build their own private networks. Many of these initiatives involve connecting existing/new applications that enable the utility to collect and use data from a wide variety of grid assets, including smart meters and distributed energy resources (DERs). 5G has clear technical benefits which include shorter latency and higher throughput. But many connected assets in the grid will not see benefit from these improved speeds. As we have seen firsthand, 5G will prove too costly for certain applications. Ubiik will present case studies in which 4G LTE CAT M has proven to be the most ideal technology for the smart grid assets that are to be periodically remotely monitored & controlled. 4G LTE CAT M not only achieves better range but is 5X more cost-effective, which makes it far more ideal to connect assets like smart meters, storage, EV chargers, etc.

## Benefits of a ground up cybersecurity approach to Mission Critical Communications

As utilities' around the country review their communications infrastructure, the increasing need for secure and robust mission critical voice and data communications is a driving force behind the decisions they make moving forward. Growing demands for IoT data, ubiquitous voice over converged platforms and increased cybersecurity demands are forcing utilities to explore options that are outside their comfort zone. Of these, cybersecurity is emerging as the single most critical feature that drives the decision making process. This is pushing utilities to examine their future plans in a different light, one that focuses more holistically on the network as a whole rather than subsystems independently. Mission Critical voice and data suppliers must recognize this trend and be able to offer products and services that address this new normal.

## How Hitless Switching 0ms Switching and Ethernet

All Utility Critical Applications using Legacy interfaces such as T1, C37.94, Mirrored Bits as well as 61850 Ethernet Based Critical Applications such as Sample Values and Inter Substation Goose Messaging can benefit from Hitless Switching (0 ms switching time) where traditional sub 50ms switching time does not meet the requirements for critical time sensitive applications. In this presentation, we will provide an overview of the technology that is currently available to achieve Hitless Switching (0ms Switching time) and we will present a demonstration for this technology.

## Leveraging the NIST CSF where NERC CIP Doesn't Apply Distribution

Enhancing your cyber posture and achieving critical infrastructure resiliency is essential to your business. To achieve it, you need to understand the challenges of building such a cyber program, despite the evolving threat landscape and perpetually expanding regulatory standards. When our clients seek to develop a more comprehensive cyber security program based on the NIST Cyber Security Framework ("CSF"), they intend to create a cyber security program to cover assets in their Transmission & Distribution operational technology network not currently covered by the North American Electric Reliability Corporation ("NERC") Critical Infrastructure Protection standards. The starting point for achieving cyber resiliency is to implement a risk-centric program. Efforts to implement a Cyber Resiliency program would likely not be effective without addressing the organizational disparity between the business technology environment and the ICS side.

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## Fiber Broadband Network Architecture Considerations-01

There are many architecture options to be considered when determining what is required to support and operate your Fiber broadband business. The session will provide various options along with operational considerations to consider when deciding what is required. The audience will gain firsthand insights from a seasoned industry leader who, has designed and operated fiber broadband network for many years. Topics that will be covered: • PON switches • Access architectures • Distribution designs and materials • Cable placement considerations • Connecting homes and businesses • Emergency restoration

## Fund Plan and Build-Tips to get you started in Broadband

*Description Coming Soon*

## Middle-Mile Capitalize on your beginning with the end in mind

Middle Mile infrastructure partnerships allow utilities and broadband providers to capitalize on expertise from each side of the business. Enabling Middle Mile connectivity can fast-track broadband deployment to communities, and in turn foster economic development. There is a growing opportunity on both state and federal levels to fund these projects. And as more companies recognize the value, these funds are being used to fast track success.

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## It's Raining Grants

It is critical that you are prepared to react to grant opportunities once the rules are released, planning cannot wait until the end. Federal, state, and local grants for broadband continue to expand. On a federal level the NTIA, FCC, and the RUS have issued grants for broadband for un-served and underserved areas in the country. In the recent infrastructure bill (eligibility rules under development) over \$60 billion has been designated for broadband deployments. The bill does indicate that some of the grant dollars will be designated for middle-mile infrastructure to connect critical assets such as substations and communication facilities such as towers and antenna mounting facilities. This session will review the range of grant sources, known general rules and timing, broadband eligibility rules, and potential applicability to support utility needs.

## Regulatory Issues for Providing Broadband

Utilities are in a unique position to extend much-needed broadband services to rural America, with existing physical connections to rural customers and a ubiquitous network infrastructure that can be leveraged to provide reliable, fast, and affordable broadband to areas that are unserved or underserved by other commercial service providers. At the same time, the regulatory obligations facing utilities that are actively offering broadband or interested in doing so have continued to evolve, presenting challenges that utilities must be prepared to address in order to meet the needs of the customers they serve. Utility Broadband - Managing the Regulatory and Legal Considerations Utilities face legal and regulatory challenges when providing broadband services but the rewards can be significant. Legal and regulatory issues typically are manageable, but must be evaluated and confronted early on. Once identified, utilities need a compliance strategy.

## Any traffic over any network Tunneling technologies to enable utility applications

Protocols like IEC 61850 GOOSE require what has traditionally been LAN connectivity, a layer 2 network, between devices within a substation control house or yard. As DERs and FLISR schemes require more communications, it is important to look at how to transport this traffic over any type of underlying network to enable communications that increase system reliability and visibility. L2TPv3 and MPLS can provide this along with other modern solutions like the GENEVE protocol. Please join this session to take a look at strategies for different ways to overcome an underlying transport system that does not provide the flexibility you need for specific applications.

## Don't get caught unprotected is your distribution system ready for solar

Due to the expansive growth of solar distributed generation, engineers must take proactive steps to adapt their legacy systems. The non-inductive load characteristic of solar inverters creates a new challenge which must translate into more robust system protection schemes. This presentation will give real examples of distribution interconnected systems with lessons learned on best practices for protection system modeling and technological advancement.

## IoT Communications Technologies Terrestrial and Extraterrestrial

There are several existing technologies and seemingly countless emerging technologies in the Industrial IoT ecosystem. From terrestrial wireless to extraterrestrial wireless, learn the options available to Utilities. We will review the advantages and disadvantages of each and the considerations needed during the network design process. For each technology, we will discuss its commercial availability, viability, and scalability. Technologies covered will include: Terrestrial Wireless: FAN Cellular Public Private NB-IoT LORA SigFox Balloon Extraterrestrial Wireless: LEO MEO GEO

## Building and Maintaining Vendor Utility Member Relationships

We will cover how to build vendor/Utility member relationships, maintain them, build trust in the relationships, relationship challenges and pitfalls, how to ensure you are talking to the right people, understanding each other's needs, and how to get to that win-win relationship.



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## Using Drones in Utilities

Tethered Drones Provide Utilities with a Flexible, Cost-Effective Option to Restore Data and Voice Communications when Infrastructure is Compromised. Tethered drones provide a flexible, cost-effective backup solution to a wide variety of mission-critical applications, affording utilities the ability to restore affected sections of their critical infrastructure. Applications include but are not limited to land mobile radio (LMR), SCADA, AMI, IIoT, ad-hoc point-to-point links, restoring cellular coverage in a decimated area, or providing local Wi-Fi connectivity to personnel and their mobile applications. Tethered drone packages are 100% portable and can be deployed in a field or the back of a pickup truck, so they can be taken onsite as they are needed. The tethered drone solution can be autonomously deployed and retrieved, requiring only minimal training. Given that the drone is powered via the tether, it can stay in flight for as long as it is needed. Data communications from the drone to the ground station is directly wired, making it impervious to signal jamming/interception. Using drones in transmission and distribution today both opens up new possibilities and replaces existing work. Without drones, inspections are typically completed manually, using climbing, bucket trucks, long-range photography; or helicopter. Clearly, manual inspections involving climbing or using buckets introduce hazards that are avoided with drones.

## How to Handle the Load

Rappahannock Electric Cooperative (REC) sought insights into system line losses beyond basic purchase and sale of kilowatt hours. During the engineering analysis, distribution engineers and data scientists worked together to create or modify distribution models and processed data to extract necessary equipment ratings and electrical characteristics which were used in a data-driven evaluation of technical losses from each of the models simulated. The purpose of the data science piece was to provide further insight into the system level losses from assets external to electrical impedance and saturation losses by analyzing the relationships between SCADA, AMI, MDM, unmetered loads, and possible energy theft through bulk data analytics and algorithms. The outcome of this project provided REC more actionable insights into the different functions of load and losses indicative of their system, resulting in alignment of core systems for a precision approach to reducing losses in the future.

## Fiber To The People The Rural Electric Co-op Broadband Blueprint for Success

Join a panel of progressive electric cooperative decision-makers as they discuss their journeys to bring fiber broadband to 100% of the rural Americans they serve. Representing diverse geographies and projects ranging from greenfield to mature, the panelists articulate their decision processes, strategies for community and legislative influence, key principles for understanding project feasibility and funding, and ultimately, the triggers to project success. This interactive session will cover topics that include collective buying and statewide collaboration power, unique business models that ease the demand on co-op leadership and resources, and expert advice for leveraging upcoming funding opportunities. Attendees will take away best practices and valuable insights from some of the nation's most successful co-op leaders.

## One Fiber, One Platform, Two Secure Communication Networks

Fiber optical networks are being used for a variety of broadband access, campus connectivity and power grid cybersecurity use cases. A key technology for electric IOUs, co-ops, and public power/municipal utilities is Combo PON. Hear experts and operators discuss how two different PON technologies are simultaneously deployed across the same optical distribution network (ODN) and launched from the same interface saving power, space and optical budget. In this session, attendees will learn about the different hybrid use cases afforded by Combo PON.

## Your protection relays require hitless network protection switching

Learn about the lifecycle support of differential protection and distance protection relays on a converged IP/MPLS network. We'll begin with an explanation of how to design and provision support for a multitude of existing and new protective relays that meets the delay, jitter, delay symmetry and reliability requirements. Key options and their benefits/drawbacks will be explored. Performance monitoring and troubleshooting tips will be explained. A review of key learnings from recent industry testing will provide you insights into what's new and its future direction. Please join us if you are considering converging your protection relay traffic onto an IP/MPLS network; or interested in sharing your learnings with peers.

## 6 GHz Interference

Interference to utility microwave systems from unlicensed devices in the 6 GHz band poses an imminent threat to the reliability and safety of electric, gas and water services, as well as public safety and 911 services provide by commercial telecommunications carriers. This year has seen significant public policy developments at the FCC related to interference testing, the certification of 6 GHz unlicensed devices, and the process for authorizing automated frequency coordination systems. Meanwhile, the appeal of the FCC's 2020 Report and Order remains pending and a decision is expected soon. The outcome of the appeal is expected to have a significant impact on the FCC's plans to expand unlicensed operations in the band to allow mobile and higher power unlicensed operations. This session will review these developments and provide a look ahead at the prospects for protection from 6 GHz interference.

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## Broadband Funding and Regulations

Utilities are deploying broadband networks and providing broadband services in unserved and underserved areas. They are providing wholesale services for third party ISPs and they are providing retail services to consumers. This session will describe how utilities are succeeding in reducing the digital divide and it will explore ways they can tap into billions of dollars in funding that is being made available to promote broadband deployment. It will also look ahead to address legal/regulatory challenges related to rights-of-way, cost-recovery, and state/local restrictions on utility broadband. Don't miss this important session, which will help utilities succeed in deploying broadband networks and providing broadband services.

## Spectrum Sharing

Utilities are under increasing demand for wireless capacity and coverage and they need access to additional spectrum to meet those demands. At the same time there is increasing demand, there is a shortage of spectrum that is available in a frequency range that will provide the coverage that utilities need. Spectrum sharing technologies and policies may represent a solution for utilities in search of spectrum. This session will describe UTC's efforts to propose to share federal spectrum with utilities, as well as its efforts to drive towards global harmonization of spectrum for use by utilities. These efforts are designed to put spectrum to effective use in a way that meets utilities requirements, cost effectively, and on a timely basis, using equipment that is standardized and commercially available from multiple sources. What's the Frequency? Spectrum Availability for Utilities and Spectrum Policy Updates The spectrum landscape is constantly evolving as the demand for spectrum continues to explode and the FCC pursues ways to make more efficient use of the spectrum bands.

## Private LTE Panel Session

Panel Discussion - Developing pLTE to Support the Grid of the Future As utilities establish Digital Nervous Systems in their grids capable of "sensing" grid performance and potential issues, connecting devices across service territories requires an expansion in wireless network coverage and bandwidth across the country. WWT's Utility Industry Practice Lead will facilitate a discussion between leaders of the pLTE movement - John Hughes (Ameren), Carlos Carazo (Southern California Edison), and Wendall Reimer (Xcel Energy). The group will discuss: Current Challenges • Moving from centralized to distributed energy generation • Moving from fossil fuel to renewables • Moving from manual processes to automated systems • Increasing volatility of weather and the environment • Need to optimize grid performance to dynamically balance supply and demand • Complexity and cost of managing 10+ OT networks • Maintaining strong cybersecurity posture while increasing connectivity

## Wireless Solutions for Grid Automation

Field Area Networks - From Soup to Nuts with PGE As Field Area Networks emerge as a solution for utilities grappling with the need to monitor, control and gather data from an explosion of grid devices, the prospect of rolling out a large inter-departmental communications network can be daunting. The increasing adoption of wireless network systems in utilities, the increased shift to remote work, and the now bidirectional flow of information between utilities and consumers have expanded the threat landscape of cybersecurity attacks against utilities. Join this webinar with Ericsson and Hydro ? as they discuss where utilities stand in terms of their adoption of cellular network technologies, their awareness of their systems vulnerabilities, and their interests in fortifying their network security.

## Wireless Technology for Broadband Communications

Point-to-point and point-to-multipoint wireless are alternative solutions when deploying a broadband network to both offer broadband service to customers and for monitoring your network. To start, you will learn how to choose a public frequency or how to claim a licensed frequency for your broadband needs and the associated cost for the services you want to deploy. Next, you will learn about the technology advancements that have been made in the last two years of wireless networks; why wireless is an alternative to a hard wired fiber network for your SCADA, AMI and future Smart City applications; what are the line of site considerations that must be accounted for; who are leaders in point-to-point and point-to-multipoint wireless technology development; and how a supply chain partner can pull all elements of a wireless network together.

## Energy Sector Addressing its critical infrastructure and cybersecurity vulnerabilities

Without question the energy sector involves working with facilities, industries, and state, federal, and local agencies that are recognized as vulnerable to, and as prime targets of, cyber-attack and disruption. Utilities whom need to provide renewable/sustainable energy on an increasing basis are starting to take inventory of the many ways cyber-attacks can adversely impact our nation's infrastructure overall. The cyberthreats facing utilities include the typical threats plague other industries: data theft, billing fraud, and ransomware. Several characteristics of the energy sector heighten the risk and impact of cyberthreats against utilities and their customers. This presentation will look at Improving Critical Energy Infrastructure Cybersecurity, to further focus on "systems and assets, whether physical or virtual, that the incapacity or destruction of such systems and assets would have a debilitating impact on the nations' grid.



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## Zero Trust Architecture

It seems like every few months new Cybersecurity requirements, recommendations and regulations are published that affect the utility industry. In the ever changing landscape of data security additional publications and regulations are expected to increase. Currently, the majority of the best practices and regulations are related to NERC CIP 12, NIST's Zero Trust Architecture Special Publication and the Biden Administrations ICS Cybersecurity Initiative. Today's environments are growing more complex with large scale deployments over disparate networks. How can the utility industry address both current and future regulations without major redesigns, upgrades or rip and replace projects that are costly and disruptive? At the foundation of these regulations are the concepts of visibility and monitoring.

## Breakfast Session- Bonus Content!

### Texas Freeze Emergency Panel

Michael Quinn, Sharyland Utilities  
Mark Carpenter, Oncor  
Moderator: Mitchell Crocker,  
CenterPoint Energy

### DEI Panel

Rose Royal, OG&E  
Mitchell Crocker, CenterPoint  
Energy  
Jarad Howard, Burns & McDonnell  
Moderator: Sheryl Riggs, UTC

### Communicating Technical Information - Winning Any Audience

Anthony Vincent Bova, EdgeWork  
Soft Skills System  
Moderator: Teesa Banks, UTC

## General Session- Bonus Content!

The Opening Session includes addresses from UTC President and CEO Sheryl Osiene-Riggs; Honorable Willie L. Phillips, Commissioner, US Federal Energy Regulatory Commission; Sean Trauschke of Oklahoma Gas and Electric Company; Lonny Maler of Calix; Ken Radbedeau of Nokia; and Khoustuv Ghoshal of Ericsson North America. The Opening General Session also includes the election and affirmation of UTC's new Board Officers, and the presentation of the following awards: the Chair's Award; the Connie Durcsak Unsung Hero Award; the Meehan Award; and the Dondanville Award.