

TEXAS POWER RELIABILITY CONFERENCE

July 18-19, 2019
AT&T Executive Education and Conference Center
Austin TX

“

“Texas Power Summit covered broad topics and was excellent to stay on top of various challenges in the ERCOT/Texas region.”

Lead Operations Planning
Engineer, ERCOT

POST-CONFERENCE WORKSHOP

**Understanding the Human Factor
in Cyber Security and Critical
Infrastructure Protection**

FRIDAY, JULY 19, 2019



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EUCI is authorized by IACET to offer 0.8 CEUs for the conference, 0.3 CEUs for the workshop

OVERVIEW

The Texas power market faces challenges and opportunities in keeping continuous grid operations. After surpassing peak hourly load in 2018, ERCOT customers survived the summer with the lowest reserve levels in 10 years. Fifth in the nation for solar capacity, Texas' rapidly increasing renewable mix raises questions about how the power grid will be able to reliably generate electricity as prices approach zero. How will municipalities maintain power in unfavorable weather conditions as coal and natural gas plants close without being replaced due to unfavorable economics? Battery storage is a promising solution, but it is a technology that still needs to be developed.

Renewable energy means more customer participation on the distributed grid. Two-way traffic on transmission wires raises concerns about coordination, and external agents producing powers creates security concerns. How can power companies monitor the physical and cyber security of generation resources when they don't own the assets?

Extreme weather conditions continue to pose a threat to power companies, causing unplanned outages that must be handled immediately. Underground transmission lines are one possible solution. Microgrids are another option to minimize the impact of regional emergency outages.

Taken together, utilities, independent power providers and T&D companies have a myriad of new developments to consider in their efforts to ensure that power and transmission operations are continuous. The Texas Power Summit provides a forum for leaders to share intelligence on the best route forward.

LEARNING OUTCOMES

- Prepare for legislative and regulatory changes on the ERCOT market
- Plan for impacts that renewables will have on public power providers
- Address transmission congestion caused by increased reliance on renewables
- Discuss the implications of defining battery storage as a generation or T&D asset
- Assess the future of renewable energy based on past and present trends
- Analyze how solar power will affect the market
- Create a behavior model for a changing market dynamic
- Examine how microgrids can be used for grid resiliency
- Leverage partnerships to protect critical infrastructure

WHO SHOULD ATTEND

Utilities, IPPs, power-cooperatives specializing in natural gas, coal, nuclear, wind, and solar generation, transmission, and storage:

- Policy makers
- Executives
- Senior managers
- Operators
- Planners
- Traders

Directors, Managers, and Supervisors of:

- Regulatory Affairs
- Finance
- Safety
- Security
- Operations
- Maintenance
- Compliance
- Markets
- Supply
- Counsel
- External Affairs
- Reliability

Also:

- Shift supervisors
- Facility managers
- Human resources
- Power plant and field operations
- Security and emergency specialist
- IT/OT/Corporate media support
- Regulatory and compliance personnel
- Utility staff
- PUCT/ERCOT/Regulatory staff
- Developers/Independent power producers
- DER/DR/Storage solution providers

To Register, Call 201 871 0474 or Click Here

AGENDA

THURSDAY, JULY 18, 2019

8:30 – 9:00 am Registration and Continental Breakfast

REGULATORY UPDATE: WHAT IS NEEDED AND WHAT IS ON THE HORIZON

9:00 – 9:45 am

Regulatory Update

ERCOT will now implement Real-time co-optimization (RTC). In a world of innovative technologies how will this change the overall and ancillary services markets? Will the suppliers of ancillary service change as well as the products offered? Inherently in implementing RTC is where is ERCOT? And, what is needed to further integrate storage and other innovative technologies that are surely on the horizon. We will discuss what has been completed and what still needs to be solved for these technologies to be integrated into the markets.

- What does real-time co-optimization mean to the market?
- Providing ancillary services in ERCOT
- 2019 Legislative session wrap up: what passed and other key takeaways

Robert Helton, Senior Director, Regulatory Affairs, Engie North America
Charlie Hemmeline, Executive Director, Texas Solar Power Association

ECONOMIC TRENDS IN THE TEXAS ENERGY MARKET

9:45 – 10:30 am

How Future Industry Developments May Impact Public Power

There is no doubt that the electric industry is changing. There are many shifts occurring including: transportation electrification; smart homes, businesses and cities; and generation decentralization just to name a few. Many electric cooperatives see these transitions coming and are preparing to meet the needs of their members for decades to come. Ultimately, as cooperatives are owned and governed by the members they serve, the business model is well-suited to continue to meet the needs of the members and owners as the electric industry changes.

- A look at expected industry changes
- Definitions of DSO, EI, DER, EaaS
- Preparing for the future

Cameron Smallwood, CEO, United Cooperative Services
Erika Bierschbach, Director, Market Operations & Risk Management, Austin Energy
Jolly Hayden, Consultant (Fmr Golden Spread Electric Coop)

10:30 – 11:00 am

Networking Break

11:00 – 11:45 am



Addressing Transmission Congestion due to Increasing Renewables: Bearkat Transmission Loop

There has been significant transmission congestion occurring at strategic points in West Texas as more renewable generation is being built. While this congestion can be ordered as a solution to transmission security, it negatively affects transmission adequacy. A transmission expansion project was approved by the ERCOT Board that will address congestion and improve system reliability.

- Roughly 30-mile 345-kV transmission line expansion in Glasscock County
- Loops in the 345-kV radial line to the WETT Bearkat switching station
- Several options passed economic payback threshold
- Long term societal benefits used to select project from options
- CCN to be filed by early next year

Wayne Morton, CEO, Wind Energy Transmission Texas

To Register, Call 201 871 0474 or Click Here

AGENDA

THURSDAY, JULY 18, 2019 (CONTINUED)

MARKET OVERVIEW: CURRENT STATE AND OUTLOOK

11:45 am – 12:30 pm **Battery Storage: Generation or T&D Assets?**

A seminal case before the Texas Public Utility Commission, which has now become a rulemaking, and may be considered for legislation, will answer this key question and could have a tremendous impact on how the ERCOT market operates. Opponents of this motion expressed concern about the fairness of costs of Unaccounted-for Energy (UFE) being uplifted to the entire ERCOT market and displacement of traditional generation dispatch (and the related effect on price formation resulting from peak shaving). Supporters argued that it should be allowed because of enhanced efficiency, reliability, and cost-savings to customers.

Can a transmission & distribution utility own and operate battery storage facilities for purposes of reliability operations?

Kip Fox, President, Electric Transmission Texas, American Electric Power
Thomas Tynes, Director, CleanTX

12:30 – 1:30 pm

Group Luncheon

1:30 – 2:15 pm

Past, Present and Future of Renewable Energy

What are the key drivers that will create additional wind and solar generation capacity additions over the next 5 years. The speaker will provide perspectives from past, present and future development of wind generation trends and also provide an outlook on the future of the wind, solar and fossil generation mix.

- What is the future of coal and natural gas in Texas?
- ERCOT interconnection queue – investigating facts versus fiction?
- What will drive the future of real MWs on the grid?
- Renewable energy resource versus grid access?

Ward Marshall, Senior Director of Business Development, Pattern Energy

2:15 – 3:00 pm

Increasing Reliance on Solar Power

Utility-scale solar is taking off in Texas, with several GWs of PPAs executed in 2018 and 2019 for a wide variety of offtakers. Slower than wind to arrive in the Lone Star State, solar is forging its own path based on its unique characteristics. It offers a strong value to end users due to the high correlation of solar production and power prices, and its modular nature allows developers to respond to congestion price signals by siting closer to load.

- What do different types of customers want in a solar PPA?
- What lessons can be learned from the success and challenges of wind in Texas?
- How will Texas avoid the California duck curve?
- How does the ITC structure impact the way solar interacts with the market?

Jacob Steubing, Director, Origination and Structuring, Recurrent Energy

3:00 – 3:30 pm

Networking Break

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AGENDA

THURSDAY, JULY 18, 2019 (CONTINUED)

3:30 – 4:15 pm

Creating a Behavior Model for Best Practices in Changing Market Dynamics

The electric industry has changed tremendously over the last 10 years with new demands for renewable energy, advanced technology, and new regulations. Organizations operating within electric markets face the challenge of adapting to these changes from an organizational perspective. By analyzing the behavior of personnel working within the industry, leaders make decisions to create either competency or incompetency within their work groups. Questions to explore during this session:

- What data do you need in order to make informed decisions?
- Will you need to design or build new applications for new equipment?
- What knowledge will your organization need in order to be successful?
- Will you expect existing employees to become SME's on the new equipment or will you hire new experts?
- How will you motivate personnel to engage with new demands for success?

Brian C. Legg, Doctoral Candidate, Organizational Leadership; Chairman – Human Performance Improvement Task Force (HPITF), ERCOT

4:15 pm

End of Day One

FRIDAY, JULY 19, 2019

8:30 – 9:00 am

Continental Breakfast

TOOLS FOR RESILIENCY

9:00 – 9:45 am

Microgrids as a Tool for Resiliency: UT Austin Microgrid Load Management System

The University of Texas at Austin Campus has been growing at an average of 2% in the last 15 years. Despite this growth, high levels of reliability, and increased efficiencies are achieved via the Campus Microgrid load management system. This session describes UT Austin microgrid components, network, and control functions that make this system unique in achieving those efficiency and reliability levels and not dependent of the Texas grid. It also covers how UT Austin can potentially assist the grid when power is needed during summer peak hours.

Roberto Del Real, Associate Director for Energy Management and Optimization, University of Texas

9:45 – 10:30 am



Critical Infrastructure Protection Case Study: Austin Energy NERC Audit

Austin Energy went through a NERC CIP audit in Q2 2019. The speaker will describe the process to prepare for the audit and provide lessons learned. He will share what evidence worked and what evidence led to follow-up questions by the auditors. He will also share any recommendations from the audit team.

- Inherent risk analysis
- Internal controls evaluation
- Audit package
- Off-site audit
- On-site audit
- Audit report

Andrew Gallo, Director, Corporate Compliance Program, Austin Energy

10:30 – 11:00 am

Networking Break

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AGENDA

FRIDAY, JULY 19, 2019 (CONTINUED)

11:00 – 11:45 am

Leveraging Partnerships to Protect Critical Infrastructure

As the municipal energy provider for the San Antonio area, CPS Energy is in a unique security ecosystem that includes a long-time military presence and the nation's second largest cyber security hub, serving as a home to a number of military cyber defense missions, intelligence agencies, cyber-related commercial and defense industry firms. CPS Energy works closely with a number of key strategic partners to ensure it is able to play its part within this security ecosystem by providing a safe, secure and resilient supply of energy its customers. These partnerships have been cultivated with government agencies at the state, federal and local level, law enforcement agencies, industry and educational institutions.

CPS Energy will present its own experience and share how its partnerships have resulted in improvements in its following key areas:

- Intelligence & analytics
- Emergency preparedness & response
- Workforce development
- Information & best practice sharing

Shanna Ramirez, Director, Integrated Security, CPS Energy

11:45 am

Conference Adjourns



"This offered a unique setting in that it provided for intimate conversations with industry experts in a more casual setting than typical conferences."

Director of Electric Services, New Braunfels Utilities



"I respect the balance of both men and women attendees and speakers."

Project Coordinator-Renewables, Algonquin Power

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POST-CONFERENCE WORKSHOP

Understanding the Human Factor in Cyber Security and Critical Infrastructure Protection

FRIDAY, JULY 19, 2019

OVERVIEW

Modern Bulk Electrical Systems have never seen levels of critical infrastructure protection akin to those in currently in place around North America. Unfortunately, it seems those who seek to sow discord on the power grid are still finding access in ways that can completely negate the advanced technology we put in place. In recent years for every step forward we take in technology, end-user negligence takes us two steps back. The North American Electrical Reliability Corporation (NERC) has established multiple standards that guide policy writing to guide end-users, planners, and other personnel in safe use, but having a policy in place is simply not enough; end-user's must be aware of the true power of their access.

Over the last 10 years, (particularly in 2013, 2015, and 2016 and on a local level in 2018 and 2019) attacks on utility entities around the world have become far more prevalent than ever before. In 2013 a generation substation in Metcalf, California was the target of a coordinated sniper attack in the early morning hours. In both 2015 and 2016 the national power grid of the Ukraine was compromised and shut down. In 2018 the communication platform for a natural gas production and distribution company in the Permian Basin area of Texas was compromised and infiltrated. So far in 2019, Pedernales Electrical Cooperative has reported multiple social engineering attacks focused on compromising customer payment data.

According to Scott Stewart (2017) of Stratfor, "One of the foundational precepts of Stratfor's security analysis is that as security measures become more effective, people increasingly become the weakest link in a security system" (para. 4). As cyber and critical infrastructure attacks become more prevalent and more brazen, one certainty is we cannot engineer our way out of these threats. Instead we must create a culture of awareness, one where our end users recognize the value of the control they possess. From System Operators and Engineers, HR Professionals, Accountants, and CEO's; everyone must be aware of the power of access.

Creating such a culture means that every member of the staff must understand the proverbial why behind the how when it comes to cyber security and critical infrastructure protection. First, we begin by educating our staff on how hackers exploit the human factor discussed by Stewart; the targets, and the surprising social engineering tactics used to gain information. Second, we must discuss recent real-world examples of attacks and breaches against the utility industry and the North American Power Grid. Finally, we must discuss ways to change our behaviors and actions, and how we respond to events as they occur in real-time.

LEARNING OUTCOMES

- Effectively assess "the human factor" in cyber security
- Recognize and respond to cyber filtration as an end user
- Protect assets using the principals of Human Performance Improvement (HPI)
- Identify where behavioral change is required as technology changes
- Examine the "blame cycle"
- Create a strong cyber awareness culture

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WORKSHOP AGENDA

FRIDAY, JULY 19, 2019

12:30 – 1:00 pm**Workshop Registration****1:00 – 2:00 pm****The Human Side of Cyber Security**

With every advancement in technology meant to protect our cyber systems, end-user neglect has the power to negate updated hardware and software applications. Emerging trends provide a glimpse into where we are failing and the toll of those failures. NERC requires our access be a combination of three things: something we are, something we have, and something we know; still, each of can be easily compromised with the right tactics. Managers and supervisors must be aware of modern social engineering tactics, and how successful hackers opt to exploit the human factor in their campaigns to breach networks.

- Exploiting the Human Factor
- How Power Grids get “Hacked”
- Real-Time Discussion: Houston among Targets of North Korea Hacking Campaign (3/4/19)

2:00 – 3:00 pm**Human Performance Improvement**

In the event of a cyber intrusion, the end-user is the first line of defense. The actions the end-user takes can have a significant impact on stopping the event or potentially making it worse. Our end-users must be familiar with what is expected of them and understand that management and supervisors trust their decisions. In order to begin this process, managers and supervisors must first understand Human Performance Improvement.

- Recognizing and Responding to Cyber Infiltration as an End-user
- The Principles of Human Performance Improvement (HPI)
- Real-Time Discussion: Electric Grid Attacks Costs \$10 Billion a Year (2/27/19)

3:00 – 3:30 pm**Networking Break****3:30 – 4:00 pm****Creating a Culture of Human Awareness**

Reliable cyber defense is born of a culture of human awareness in which the end user understands the impact of their access and control. Creating such a culture requires managers and supervisors to understand organizational processes, and how those processes are affected by response to human error. Critical to understanding current culture and identifying where change is necessary, means understanding the blame cycle. Knowing the relationship between organizational processes, human error, and managerial response will enable decision makers to implement better HPI measures and create a strong cyber awareness culture.

- Organizational Processes, Human Error, and the Blame Cycle
- Implementing Human Performance Improvement (HPI)
- Real-Time Discussion: Cybersecurity Threats to US Infrastructure Warrant ‘Moonshot’ Response (2/26/19)

4:00 pm**Post-Conference Workshop Adjourns**To Register, Call 201 871 0474 or [Click Here](#)

WORKSHOP INSTRUCTOR



Joshua Aldridge

Chairman – Operations Training Working Group, ERCOT

Josh Aldridge is a retired U.S. Marine Corps Engineer with over 20 years of experience in power system operations, physical and cyber security, and leadership development and ergonomics. His assignments during active duty include Regimental Utilities Chief, Curriculum Manager of Basic and Advanced Electrical Operations Courses at Marine Corps Engineer School, Operational Security Analyst, and International Power Grid Improvement & Assistance Liaison. During his last tour as a U.S. Marine, Josh served as the Facilities Engineer for Camp Kinser, aboard Marine Corps Bases Okinawa, Japan where his duties included the daily utilities operation of the island's foremost logistics encampment. Here he further honed his skills in leadership development, power system operation, and cyber security against daily threats.

After retiring from the U.S. Marine Corps, Josh continued his career with Martech Training Services in Houston, TX. During his time with Martech, Josh created and delivered both online and instructor led content in Critical Infrastructure Protection, Physical and Cyber Security, System Operator Development, NERC compliance, and System Operations Process Improvement. Josh's abilities were called on across North America, the Middle East, and across islands in the Caribbean among others.

Josh currently serves as a System Operations Trainer, and recently served as the Chairman of the ERCOT Interconnection's Operations Training Working Group. Josh's current duties include research and development of material used in continuing education of Power System Operators and Operations Support personnel, ERCOT operator development program lead, system protection simulation research and development lead, and researcher on ERCOT's IROL and SOL methodology.

To Register, Call 201 871 0474 or [Click Here](#)

INSTRUCTIONAL METHODS

The conference will include Case Studies and PowerPoint presentations will be used for all learning outcomes.

REQUIREMENTS FOR SUCCESSFUL COMPLETION

Participants must sign in/out each day and be in attendance for the entirety of the conference to be eligible for continuing education credit.

IACET CREDITS



EUCI has been accredited as an Authorized Provider by the International Association for Continuing Education and Training (IACET). In obtaining this accreditation, EUCI has demonstrated that it complies with the ANSI/IACET Standard which is recognized internationally as a standard of good practice. As a result of their Authorized Provider status, EUCI is authorized to offer IACET CEUs for its programs that qualify under the ANSI/IACET Standard.

EUCI is authorized by IACET to offer 0.8 CEUs for the conference, 0.3 CEUs for the workshop.

EVENT LOCATION

The event is located at the AT&T Executive Education and Conference Center, 1900 University Ave, Austin, TX 78705, for the nights of July 17-18, 2019. Room rates are US \$199 plus applicable tax. Call **1-512-404-1900** for reservations and mention the EUCI event to get the group rate. The cutoff date to receive the group rate is June 17, 2019 but as there are a limited number of rooms available at this rate, the room block may close sooner. ***Please make your reservations.***

REGISTER 3, SEND THE 4TH FREE

Any organization wishing to send multiple attendees to this conference may send 1 FREE for every 3 delegates registered. Please note that all registrations must be made at the same time to qualify.

SPONSORSHIP OPPORTUNITIES

Do you want to drive new business through this event's powerful audience? Becoming a sponsor or exhibitor is an excellent opportunity to raise your profile before a manageably sized group of executives who make the key purchasing decisions for their businesses. There is a wide range of sponsorship opportunities available that can be customized to fit your budget and marketing objectives, including: **Platinum, Gold, or VIP sponsor, Reception host, Networking break host, Tabletop exhibit, Workshop sponsor, Lanyard sponsor, Luncheon host and Breakfast host.**

To Register, Call 201 871 0474 or [Click Here](#)

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EVENT LOCATION

Mail Directly To:

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PLEASE REGISTER

BUNDLE PRICE: TEXAS POWER RELIABILITY CONFERENCE AND WORKSHOP: JULY 18-19, 2019: US \$1795

EARLY BIRD on or before JUNE 28, 2019: US \$1595

TEXAS POWER RELIABILITY CONFERENCE ONLY

JULY 18-19, 2019: US \$1395

EARLY BIRD on or before JUNE 28, 2019: US \$1195

POST-CONFERENCE WORKSHOP ONLY

FRIDAY, JULY 19, 2019: US \$595

EARLY BIRD on or before JUNE 28, 2019: US \$495

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OR Enclosed is a check for \$ _____ to cover _____ registrations.

Substitutions & Cancellations

Your registration may be transferred to a member of your organization up to 24 hours in advance of the event. Cancellations must be received on or before June 14, 2019 in order to be refunded and will be subject to a US \$195.00 processing fee per registrant. No refunds will be made after this date. Cancellations received after this date will create a credit of the tuition (less processing fee) good toward any other EUCI event. This credit will be good for six months from the cancellation date. In the event of non-attendance, all registration fees will be forfeited. In case of conference cancellation, EUCI's liability is limited to refund of the event registration fee only. For more information regarding administrative policies, such as complaints and refunds, please contact our offices at 303-770-8800. EUCI reserves the right to alter this program without prior notice.