

TSDOS  
**5** FIFTY YEARS OF EXCHANGING IDEAS & EXPERIENCE  
**TRANSMISSION AND  
SUBSTATION DESIGN  
AND OPERATION**  
Since 1968 **SYMPOSIUM**

POST CONFERENCE REPORT

SEPTEMBER 6 - 8, 2017 | EMBASSY SUITES DALLAS - FRISCO

# OVERVIEW



FIFTY YEARS OF EXCHANGING IDEAS & EXPERIENCE  
**TRANSMISSION AND  
SUBSTATION DESIGN  
AND OPERATION**  
Since 1968 SYMPOSIUM

## THE 50TH ANNUAL TRANSMISSION AND SUBSTATION DESIGN AND OPERATION SYMPOSIUM.

We were especially excited this year as we celebrated a milestone for this conference. In fact, we were pleased to welcome a group of individuals who attended the event in the 1960s and 1970s when its vision was being shaped for the industry.

We gather as a community each year to exchange ideas and experiences we've had since we last met to strengthen our collective knowledge base and continue to improve our industry. Thank you for those who were part of this process.

As an advisory board, we were pleased to deliver three compelling days of keynotes, panels, breakout sessions and workshops – content that was carefully crafted and selected to provide the technical information and updates you need to grow in your career.

Thank you again for your participation and support. And don't forget to mark your calendars for next year's event – September 5-7, 2018, at the Embassy Suites in Frisco, TX.

## LEADERSHIP:

From left to right: Huntis Dittmar, P.E., formerly with Lower Colorado River Authority; Bobby Cox, 50th Anniversary Committee Member, Elgin B. Robertson, Inc.; Erich Schoennagel, P.E. CenterPoint Energy ret.; Krystal Devos, American Electric Power; Joe Hazlewood, Oncor; Jack Wilcox, 50th Anniversary Committee; David Turner, P.E., Lone Star Transmission, LLC; Kevin Allen, P.E., Oncor; Tip Goodwin, P.E., Tip Goodwin Consulting, LLC; Steven Myers, Oklahoma Gas and Electric; Tim Hartz, P.E., Brazos Electric Power Cooperative, Inc.; Juan Melendez, Lower Colorado River Authority; Stan Krause P.E., American Electric Power; Reza Ebrahimian, PhD,P.E., Austin Energy; Tim Cronemeyer, American Electric Power

Not Pictured: Dr. Wei-Jen Lee, Director, Energy System Research Center, The University of Texas at Arlington; Walter Bartel, CenterPoint Energy, LLC; Mythili Chaganti, P.E., CenterPoint Energy, LLC; Matt Estrada, American Electric Power; Matthew Morrison, P.E., Oncor; David Solis, American Electric Power



## DAN SMITH

Vice President, Electric Service Delivery | Austin Energy



Dan joined Austin Energy in 2003 and is currently the Vice President of Electric Service Delivery responsible for leading Austin Energy's Transmission & Distribution organization. Prior to Dan's current role, he held positions as the Director of Smart Grid & System Operations, Director of Transmission & Substation, and Engineering Manager of Substation and Relay Engineering. Prior to joining Austin Energy, Dan worked for Advanced Micro Devices in Austin, Texas and Dresden, Germany managing Site Electrical & Mechanical Engineering. He received his Bachelor of Science in Electrical Engineering from Texas A & M University, has completed a number of graduate and post graduate courses, is a registered professional engineer in the state of Texas, a Member of IEEE, and has presented and authored numerous papers at technical conferences and educational venues. Dan is passionate about company transformation that starts and is rooted in safety.

### Is the Electric Grid the Next Blockbuster?

Is the electric grid on a death spiral? Is the Grid the next Blockbuster to be replaced by the Teslas, Googles, and Solar Cities of the world? As we all know, our electric grid is in the midst of rapid transformation. Renewable energy is being added with our traditional generation fleets and is being deployed both grid scale and customer sited. The distribution grid is evolving to allow 2-way flow of power and information with increased control, monitoring, and automation. Load profiles are flat or declining and affecting typical cost recovery business models. New market participants are looking for opportunities to provide value and turn a profit. New technologies and innovation are constantly being introduced that change the way power is generated, distributed, and managed. Customers want increased choice, convenience, communication, and information while still maintaining reliability and low costs.

In light of all this transformation, I am convinced that we who currently own and operate the electric grid not only have the ability but the responsibility to solve the technical and economic challenges presented in the next generation grid. Through collaboration within and beyond the electric utility industry, we all play an integral part and, if we don't solve these problems, someone will do it for us and likely with the results less than optimal. The grid will continue to evolve and transform and will be the key integrator and enabler of the future energy ecosystem that will facilitate customer choice and convenience while continuing to be safe, reliable, and affordable.

### TSDOS fulfilled one of the core conference objectives by providing outstanding educational sessions to professional engineers.



# BREAKOUT SESSIONS

## TRANSMISSION

- 138kV Transmission Relocation on Alexander Island, TX
- The Value of Nondestructive Testing of Unknown Transmission Foundations
- Utilizing the Design of Hybrid Transmission Line Structures in Flood Plain Regions
- Overhead Line Insulators Performance In Contaminated Environment
- Comparative Analysis of Drilled Shafts using LPILE and MFAD
- Airline to Holly - A Case Study on UAV Based Tower Inspection
- Design and Installation of Steel Monopoles 200 Feet and Taller
- Transmission Line Drilled Pier Design, Limiting Rotation and Creating a Balanced Performance Criteria
- An Analysis of Phased Array Ultrasonic Testing versus Conventional Ultrasonic Testing in the Utility Pole Industry
- The Catenary Exposed - Understanding Theoretical Conductor Behavior in Transmission Lines
- Arc Flash Visible Light Intensity as Viewed from Human Eyes

## SUBSTATION

- Building Information Modeling Technology
- Substation Grounding and Step Over Native Concerns
- Reducing Misoperations through Improved Quality Control in Protection System Design
- Power Transformers Field Dry Out Optimization Utilizing Dielectric Frequency Response Method
- Designing Grounding Grids
- Panel On EMP
- Commissioning a Substation Security System

## OPERATION

- Considerations for Comprehensive Review of Temporary Protective Grounding Procedures
- Guarding of Electrical Equipment: Field Considerations
- Steady-State and Dynamic Transmission System Model Validation (NERC MOD-033-1)
- Transformer Tank Vibration Model to Detect Winding Deformations
- Drones: Surveying for Transmission Route Engineering, Substation Design and Installation of Facilities
- Deploying a New Fault Location Strategy in a Large Utility - A Case Study
- Advantages, Limitations and Development of Power Transformer Insulation Diagnostics

## OTHER

- Xcel Energy AC Interference Program: Metallic Pipelines
- Utilizing Visual and Thermal Video Analytics to Enhance Operational Efficiency
- Hartburg Substation Flooding and Recovery
- Professional Ethics





## PRESENTATION SUMMARY

**40**

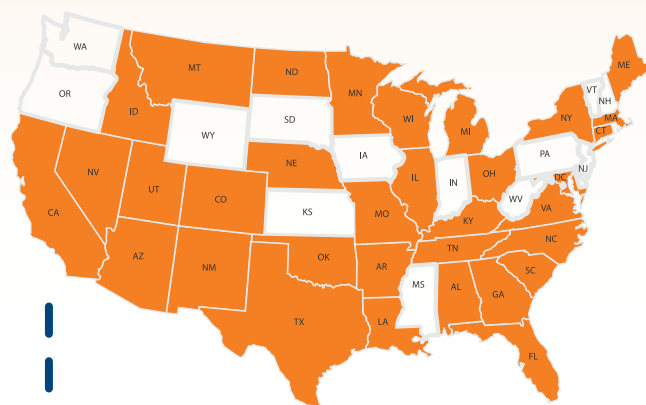
Conference Speakers



**33** Sessions and Workshop

## CONFERENCE DETAILS

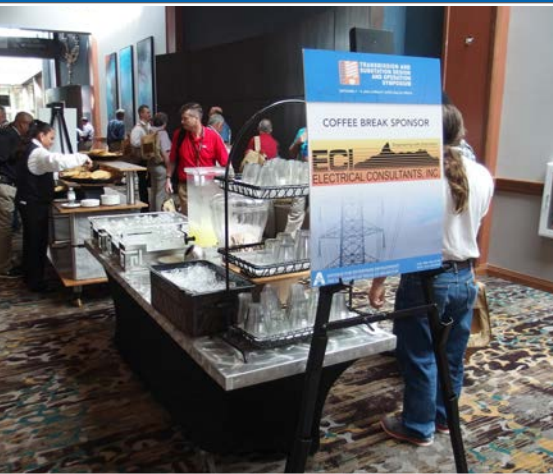
Participants from **34** States, Canada, Columbia & Germany



**776** Attendees

**81** Vendors

# 2017 VENDORS



- 3 Phase Technologies
- All-Pro Fasteners, Inc.
- Amped I LLC
- Bedford Technology
- Black & Veatch
- Burndy, LLC
- Butler & Land, Inc.
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- DIS-TRAN Steel, LLC
- Doble Engineering Company
- Dynamic Ratings
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- Falcon Steel Co.
- FDH Velocitel
- Fred Oberlender & Associates
- Great Southwestern Construction
- Hamby Young, A Division of Wesco International, Inc.
- Hayden Consultants, Inc.
- Hubbell Power System
- J.H. Davidson & Associates, LLC
- Jordan Transformer
- KD Johnson, Inc.
- Keasler Associates
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- Lake Cable, LLC
- Leidos, Inc.
- Len T. Deloney Co., LLC
- MasTec
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- McCord Engineering, Inc.
- Megger
- MindCore Technologies, Inc.
- Mitsubishi Electric Power Products
- Nexans
- NM Group
- Normandy Machine Co.
- North American Substation Services
- OTC Services, Inc.
- PLH Group, Inc.
- Preferred Sales Agency
- ReliaPOLE Inspection Services
- RES Group
- Sabre-FWT
- Saber Power Services
- Schneider Engineering, Ltd.
- Sediver USA
- Sempco Surveying
- Service Wire Co.
- Shermco Industries
- SMC
- Southeast Power Corporation
- Southwire Company
- SPX Transformer Solutions
- Stanley Consultants, Inc.
- Surveying And Mapping, LLC (SAM)
- SynchroGrid, LLC
- TAPP, Inc.
- Techline, Inc.
- Terracon Consultants, Inc.
- Texas Electric Cooperatives
- The Turner Co.
- Think Power Solutions
- TRC
- Tricon Precast, LTD
- UAI
- Utility Sales Agents of North Texas
- Vacuum Interrupters
- Valmont Utility
- Victor Insulators, Inc.
- Wesco
- Willbros Engineering & Services

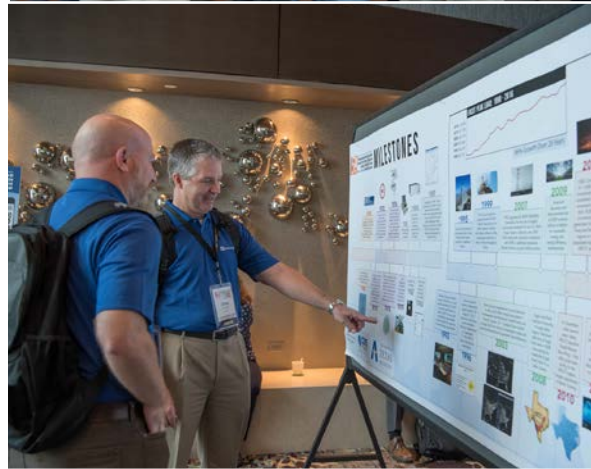
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## REGISTRATIONS

Vendor Fee with Conference Included Standard .....	\$900
Vendor Fee with Conference Included Early Bird .....	\$800
Vendor Fee .....	\$450
Attendee On-Site .....	\$495
Attendee Standard .....	\$450
Attendee Early Bird .....	\$350



# BOARD MEMBERS

**KEVIN ALLEN, P.E.**

Consulting Engineer,  
Transmission Engineering  
**Oncor Electric Delivery Company**

**WALTER BARTEL**

Director, Project Engineering  
**CenterPoint Energy, LLC**

**MYTHILI CHAGANTI, P.E.**

Supervising Engineer, Transmission Planning  
**CenterPoint Energy, LLC**

**TIM CRONEMEYER**

Station Manager  
**American Electric Power**

**KRYSTAL DEVOS**

Engineer, Station Technical Services  
**American Electric Power**

**HUNTIS DITTMAR, P.E.**

Engineering Supervisor  
**Lower Colorado River  
Authority**

**REZA EBRAHIMIAN, PHD, P.E.**

Manager, Transmission Planning  
& Reliability  
**Austin Energy**

**MATT ESTRADA**

Engineer Sr.  
**American Electric Power**

**TIP GOODWIN, P.E.**

Consulting Engineer  
**Tip Goodwin Consulting, LLC**

**TIM HARTZ, P.E.**

Manager - Transmission Engineering  
**Brazos Electric Power Cooperative, Inc.**

**JOE HAZLEWOOD**

Technical Specialist  
**Oncor Electric Delivery Company**

**STAN KRAUSE, P.E.**

Manager, Transmission Line Engineering  
**American Electric Power**

**DR. WEI-JEN LEE**

Director, Energy System Research Center  
**The University of Texas at Arlington**

**JUAN MELENDEZ**

Engineering Manager, Transmission  
Standards  
**Lower Colorado River Authority**

**MATHEW MORRISON, P.E.**

Transmission Standards Manager  
**Oncor Electric Delivery Company**

**STEVEN MYERS**

Manager, Substation Operations Support  
**Oklahoma Gas and Electric**

**ERICH SCHOENNAGEL, P.E.**

Manager of Transmission Engineering  
(Retired)  
**CenterPoint Energy**

**DAVID SOLIS**

Transmission Services Station Manager  
**American Electric Power**

**DAVID TURNER, P.E.**

Director of Operations  
**Lone Star Transmission, LLC**

*The University of Texas at Arlington  
Conference and Event Management:*

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Exhibition Coordinator

**NICOLE BURAGLIO**

Assistant Director

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## 50TH ANNIVERSARY MEMORABILIA



## MOBILE APP BANNER



## CONTRIBUTING



# CEM CONFERENCE & EVENT MANAGEMENT



THE UNIVERSITY OF TEXAS AT ARLINGTON

**SAVE THE DATES**

September 5-7, 2018

Pre-conference:

September 4, 2018

