

POST HYBRID-CONFERENCE REPORT





CONFERENCE OVERVIEW



The Annual Transmission & Substation Design & Operation Symposium (TSDOS) serves as a forum for utilities, engineers, suppliers, contractors, and consultants to present and discuss the most recent trends, challenges encountered, and solutions adopted. In addition, attendees and vendors gather to share ideas and experiences and learn from case studies from experts in their fields.

Out of concern for our community's health, safety, and well-being, the 54th TSDOS was conducted as a hybrid event on Wednesday, September 8, 2021 – Friday, September 10, 2021, in Frisco, Texas. Over three days, we live-streamed keynote presentations and interactive sessions with real-time Q&A. The remaining symposium sessions were recorded and available on- demand to attendees up to three weeks after the symposium. Attendees were able to earn 15 PDH credits, including 1 hour of Ethics.

Attendees who joined us in Frisco for the symposium interacted with vendors on Wednesday and Thursday night during the hospitality event. Vendors demonstrated their products, shared documents, and chatted with attendees.



CONFERENCE KEYNOTE SPEAKER



BOB ROSE

CHIEF METEOROLOGIST

LOWER COLORADO RIVER AUTHORITY

Bob Rose is the chief meteorologist for the Lower Colorado River Authority (LCRA). Bob is responsible for the daily forecast of weather conditions and temperature affecting LCRA's power generation, electrical transmission, flood control and water supply operations. In addition to short term forecasts, Bob provides LCRA operation centers with long-term weather forecasts and updates on the threat for severe weather and extreme temperature. Prior to coming to LCRA, Bob worked at TV stations in Austin and Bryan-College Station.

Bob earned his B.S. in Meteorology from Texas A&M University.

Bob has served as past president of the Central Texas Chapter of the American Meteorological Society (AMS). Bob holds the seal of approval and the certified broadcast meteorologist award from the AMS. Bob is a regular contributor to the National Drought Monitor. Bob is also the Travis and Williamson County coordinator for CoCoRaHS, a volunteer network of rainfall observers.

Bob writes a daily blog about Central Texas weather which appears on LCRA's website. Bob gives numerous talks about the weather to various civic and school groups around Central Texas. Bob enjoys traveling and has been on 17 different cruises to various parts of the world.

FROM HURRICANES TO WINTER STORMS, WHAT ARE THE NEW NORMALS

Updated climate normals were released for the U.S. back in May, adding in data from 2010s and leaving behind data from the 1980s. The updated averages show a clear trend of warmer temperatures for all the south-central US. But the pattern for rainfall isn't nearly as clear, with a mixed bag for areas trending wetter and drier. What does this new data tell us about our climate for the next decade?

Winter storm Uri wreaked havoc on Texas back in February, bringing some of the coldest temperatures on record to a large part of the state. But it wasn't just the cold, it was the duration of the cold and the widespread snow and ice that made this period so unique. What are the chances Texas could see another storm of this magnitude in the near future, or was this just a freak, once in a lifetime occurrence?

Hurricanes stole the headlines last summer in the most active hurricane season on record. Many of the forecasts were quite good, even from days out. Forecasters have been adding tools to their forecasting toolbox over the last few years and forecast should continue to improve in the future.



CONFERENCE SESSIONS

GENERAL

- Interconnection of Lubbock Power and Light's 115kV System with ERCOT
- Lubbock Power & Light (LP&L) The ERCOT Solution Part 2 The Big Switch
- Three Years..... Is It Possible? How Two Electric Utilities and a Team of Contractors Collaborated to Convert Texas' Third Largest Municipally Owned Utility Into ERCOT in Just Three Years
- LCRA Transmission Design and Protection, Tools for the Working - From - Home Environment
- Increase Protection Liability through Existing Lidar
- The Texas Electricity Crisis 2021: Revealing the Blind Spots
- Prescriptive Specifications: It's Time to Upgrade to Performance
- 500kV Emergency Restoration - Super Structures
- Consideration of Socio - Economic Values in Transmission Line Engineering

TRANSMISSION

- Breakdown of Structural Analysis Modes of Transmission Poles
- Exo Lattice Tower Emergency Stabilization Project for Evergy's Clinton - Stilwell 161kV
- Transmission Line Electrical Influence on Other Parallel Lines
- Deep Dive into Transmission Line Structure Selection
- Developing Design Wind Speeds for Transmission and Distribution Lines in Belize and Accounting for Climate Change
- Rational Design Methodology for the Drilled Pier Foundations Considering Combined Loading Conditions
- Using GIS to Improve Communication Through All Phases of Transmission Line Projects
- Tension Cables to Mitigate Vortex Induced Vibration in Steel Davit Arms (Workshop)
- The Impacts to Structure Design When Considering Load Cases in Excess of NESC 250B, 250C and 250D (Workshop)

SUBSTATION

- Dissolved Gas Analysis and the Significance of the Carbon Oxide Ratio
- Vibratory Caisson Foundations – An Alternative to Micropiles?
- Advantages and Disadvantages of Very Low Frequency and Tan Delta Testing
- Challenges in Obtaining Reliable Soil Information for Substation Ground Grid Design: Selecting an Appropriate Soil Resistivity Traverse in Proximity of Metallic Interferences
- Comparing Two Methodologies for Leak Detection in Sealed Transformers: Total Gas Pressure (TGP) Versus Oxygen/Nitrogen Monitoring
- Substation Grounding: Impacts of Design Inputs on Results
- Fastening vs. Welding: Fabricating Better Joints
- Dual Ground Testing Applications for HVCB
- A Look at BIM Beyond Traditional Substation Design (Workshop)
- How a Measurement You May Not Be Doing Can Improve Relay Operations (Workshop)
- Dissolved Gas Analysis IEEE C57.104-2019 Review (Workshop)

OPERATION/OTHER

- Building a National infrastructure for Artificial Intelligence on the Grid
- Supply Chain Streamlining Is Essential For Transportation Electrification To Scale
- Impact of the Penetration of Inverter - Based Systems on Grid Protection
- Case Study – Mitigation of Harmonic Distortions in a Grid Connected Wind Farm
- Is Your Security More "Back to the Future" or "Back From the Future?" Managing Compliance, New Technology, and Budgets
- Non-Wire Alternatives
- Electric Reliability and Power System Resilience Reshaping the Grid of the Future (Workshop)
- Overview and Comparison of Available Storage Battery Technologies (Workshop)



TSDOS BY THE NUMBERS

942

IN-PERSON AND VIRTUAL ATTENDEES

36 STATES

AL	LA	SD
AZ	MA	TN
AR	MI	TX
CA	MS	UT
CO	NV	VT
CT	NY	VA
FL	NC	WA
GA	ND	WV
ID	OH	WI
IL	OK	
IN	OR	
KS	PA	
KY	SC	

40

SYMPOSIUM SPEAKERS



3 COUNTRIES

CANADA

MEXICO

SPAIN

UNITED STATES

42

SESSIONS AND WORKSHOPS



83

VENDORS





CONFERENCE VENDORS

AFL	Hubbell Utility Solutions	POWER Engineering
All-Pro Fasteners, Inc	Incab America, LLC	Preferred Technologies, LLC
ASEC, Inc	Irby Construction Company	Primoris T&D Services, LLC
Alterman Energy Services	Irby Utilities	RES
Bell Lumber & Pole Company	J.H. Davidson & Associates	Saber Power Services, LLC
Bird Electric Enterprises, LLC	K D Johnson, Inc	Sabre Industries
Butler and Land Technologies, LLC	Keasler Associates	Schneider Engineering Ltd
CEC Corporation	KEC Retaining Walls & Construction, Inc	Sediver USA
Chain Electric Company	Kiewit	Sempco Surveying, Inc
City Transformer Service Co	Kinectrics	Southeast Power Corporation
Crown Technical Systems	kV Power, LLC	Spartan Infrastructure, Inc
Dis-Tran Packaged Substations	Laminated Wood Systems, Inc	SPX Transformer Solutions, Inc
DIS-TRAN Steel	Landpoint, LLC	Sterling Site Access Solutions
DynaGrid Construction Group	Len T. Deloney Co, LLC	Surveying and Mapping, LLC
EBR, Inc	McCord Engineering, Inc	SynchroGrid, LLC
EHV Solutions	Meyer Utility Structures	T·CORR
Electrical Consultants, Inc	MICA Steelworks	TAPP, Inc
Exo Group, LLC	Michels Corporation	Teague Nall and Perkins, Inc
FDH Infrastructure Services	Newpark Mats & Integrated Services	Techline, Inc
FiberRise	NMC Powerswitch	Terracon Consultants, Inc
Forbes Bros Group	North American Substation Services	Utility Sales Agents of North Texas
Force Electrical Services	Osmose Utilities Services, Inc	Vaisala
Fred Oberlender & Associates	Parkline, Inc	Valmont Utility
GE	Patterson & Dewar Engineers, Inc	Watson Drill Rigs
Genetec	Pfisterer Lapp, LLC	WESCO Distribution, Inc
Great Southwestern Construction, Inc	Pike Electric, LLC	Woolpert
Hawrylak & Associates, LLC	PLH Group	YAK ACCESS
HDR Engineering, Inc	Power Consulting Associates	





2021 BOARD MEMBERS

ANDREW ASTON, P.E.
Lead Substation Engineer
Oklahoma Gas and Electric

KENNETH BOWEN
Manager, Transmission Planning and
Operations Engineering
CPS Energy

MYTHILI CHAGANTI, P.E.
Manager, Standards
CenterPoint Energy, LLC

TIM CRONEMEYER
Station Manager
American Electric Power

KRYSTAL DEVOS
Engineer Sr.
American Electric Power

DR. REZA EBRAHIMIAN, P.E.
Director, T&D Planning
Austin Energy

MATT ESTRADA
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American Electric Power

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Brazos Electric Power Cooperative

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Oncor Electric Delivery

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Oncor Electric Delivery

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Conference and Event Management

CASSANDRA SMITH
Executive Director

STACI MOORE
Manager

TERRE COLEMAN
Coordinator

KIMBERLY GALE
Coordinator

AMANDA WENZEL
Marketing/Audio-Visual

PRICING

Attendee Registration Fee Early Bird	\$525
Attendee Registration Fee	\$425
Vendor Fee w/ Conference Included Early Bird	\$1,165
Vendor Fee w/ Conference Included.....	\$1,065
Vendor Fee	\$640
Additional Vendor Staff	\$55



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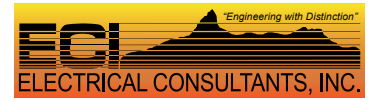




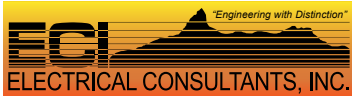
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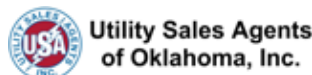
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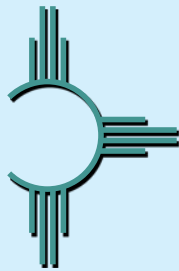
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THE UNIVERSITY OF TEXAS AT ARLINGTON

SAVE THE DATE

SEPTEMBER 7 - 9, 2022

Preconference on September 6

EMBASSY SUITES DALLAS-FRISCO

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