



Grid of the Future™



Raleigh, NC

2024

November 11-14



QUANTA
TECHNOLOGY

MONDAY, NOVEMBER 11
TECHNICAL PROGRAM OPENS AT 7:45AM

Rows highlighted in green indicate events taking place at the Sheraton Hotel, the secondary conference location

Time	Event	Speakers	Location
7:00AM - 5:00PM	CIGRE - Registration/Badge Pickup		Raleigh Convention Center North Main Lobby
1:00 - 4:30PM	Next Generation Network (NGN) Workshop Bright Spots and Blind Spots: Exploring the Potentials of Emerging Technologies	Dr. Poorvi Patel - <i>EPRI</i> Dr. Cynthia Selin - <i>Scenaric</i>	Raleigh Convention Center Room 305
4:45 - 5:30PM	CIGRE NGN Mentorship Program		<i>Invitation Only</i>
6:30 - 7:30PM	Empowering Girls in STEM	CIGRE Women in Energy (WIE)	<i>Invitation Only</i>
5:30 - 7:30PM	Welcome Reception Sponsored by Siemens Energy		Raleigh Convention Center North Hallway

TUESDAY, NOVEMBER 12

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
7:00AM - 5:30PM	CIGRE - Registration/Badge Pickup <i>*Breakfast is on your own unless you've signed up for the Women in Energy Breakfast event*</i>		Raleigh Convention Center North Main Lobby
6:45 - 7:35AM	Women in Energy (WiE) Breakfast Sponsored by Mitsubishi Electric Power Products, Inc.	Majida Malki - <i>Quanta Technology</i>	Sheraton Hotel Hannover Ballroom
7:45 - 8:15AM	Welcome Address & Keynote Address	Chris Root - <i>CIGRE USNC</i> Nelson Peeler - <i>Duke Energy</i>	Raleigh Convention Center Ballroom C
8:15 - 9:15AM	CIGRE Panel Session: Changing Electrical System - Aspirations vs. Reality	Moderator: Damir Novosel - <i>Quanta Technology</i> Panelists: Aftab Khan - <i>PJM Interconnection</i> Joe Woomer - <i>Dominion Energy</i> Shay Bahramirad - <i>PG&E</i> Ernst Scholtz - <i>S&C Electric</i>	Raleigh Convention Center Ballroom C
9:15 - 9:30AM	Morning Break		
9:30 - 11:00AM	Paper Session 1A	Authors	Raleigh Convention Center Room 305A
	<i>System-Wide Dynamic Protection Settings for Transmission Systems</i>	K. Judd - Quanta Technology , M. Malki, E. Carpenter, S. Karki, P. Wang	
	<i>A Review on Protection Challenges of Transmission Lines Connected to Inverter-Based Resources</i>	I. Zaman - Quanta Technology , O. Alizadeh, Y. Lin, A. Zamani, M. Jensen, A. Saeed	
	<i>Transmission Line Protection Under High Penetration of Inverter-Based Resources: Impact Assessments and Mitigation Solutions</i>	J. Holbach - Quanta Technology , H. Chao, Z. Cheng, Y. Hu, P. Haswell, L. E. Seiter, C. T. Hitchings, A. O'Leary, H. Hooshyar, T. Nguyen, M. Razanousky	
<i>Bridging the Gap Between Protection and Planning for Holistic Analysis of Transmission System Performance</i>	I. Anand - Quanta-Technology , B. Varughese, J. Velez, S. Alaeddini, M. Chapariha, G. Webster		
9:30 - 11:00AM	Paper Session 1B	Authors	Raleigh Convention Center Room 305B
	<i>Extreme Fast Charging: Overview of Technology and Grid Impacts, and Importance of Lab Testing to Mitigate Potential Issues and Enable Large-Scale Deployment</i>	M. Lelic - Quanta Technology , I. Zaman, H. Teimourzadeh, A. Momeni, N. Kouchakipour, A. Jain, C. Botero, R. Kothandaraman	
	<i>Managing High-Demand EV Fast Charging through Smart Charging and Energy Storage Integration: A SCE Case Study Demonstration</i>	E. Kellogg - Southern California Edison , R. A. Kwan, R. Miller, F. Elyasichamazkoti, E. Wang, J. Kruger, N. Kouchakipour	
	<i>Vehicle-to-Grid Optimization via Quantum Annealing</i>	T. Christeson - University of Denver , A. Khodaei	
<i>State of the Art in Application of Multi-Port DC-DC Converter to EVs</i>	R. Bahrami - The University of Tulsa , K. Ashenayi		

TUESDAY, NOVEMBER 12

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
9:30 - 11:00AM	Paper Session 1C	Authors	Raleigh Convention Center Room 306A
	<i>Transient Stability Assessment of Utility-Scale System with Grid-Forming Battery Storage</i>	L. Lederman - Electric Power Research Institute (EPRI), D. Ramasubramanian, M. Holmberg	
	<i>Impact of Large Load Disconnection on System Stability</i>	P. Mitra - Electric Power Research Institute (EPRI), L. Sundaresh	
	<i>Frequency Control Stability Challenges in the Future Power Grid with High Penetration of Renewable Energies</i>	C. L. Zamario - Mitsubishi Power America Co., M. Alizadeh	
	<i>Utilizing Bi-Directional Distribution Level Power Flow Studies to Illustrate Effects of DER on the Electric Distribution Grid</i>	S. Ezraseneh - Consolidated Edison Company of New York, Inc., A. Field	
9:30 - 11:00AM	Paper Session 1D	Authors	Raleigh Convention Center Room 306B
	<i>Enhancing Power Flow Management in a New England System with High IBRs Using m-SSSC and PST Integration</i>	A. Al-Homsi - Smart Wires, S. Rozon, H. Presume, J. Carrara	
	<i>Practical Applications of Near-Instantaneous Bi-Directional Power Flow</i>	J.-M. Dubois - POWER Engineers, Inc., R. MacNeill	
	<i>Practicality of Superconductors in Power Transmission</i>	K. Cole - POWER Engineers, Inc.	
	<i>Beyond the Surface: The Strategic Advantages and Growing Need for Submarine Power Cables</i>	S. Ho - Burns & McDonnell	
9:30 - 11:00AM	Paper Session 1E	Authors	Raleigh Convention Center Room 306C
	<i>Failover Redundancy Mechanism Ensuring Hitless Communications for Line Differential Protection</i>	M. Subieta - Nokia, E. Santin, H. Chan, R. Wright	
	<i>Demonstrating Segment Routing Potential for Utility IP/MPLS Networks</i>	A. Silvius - Burns & McDonnell	
	<i>Distribution Workforce of the Future: Needs and Solutions</i>	G. Johnson - Dominion Energy, J. R. Aguero, D. Hall, H. L. Willis	
	<i>Accelerated FLISR Rollout to Improve Company Reliability</i>	L. Townsend - National Grid, Z. J. Garnes	
11:00 - 11:15AM	Transitional Break		
11:15AM - 12:30PM	Grab and Go Boxed Lunch		Sheraton Hotel Hannover Ballroom
11:15AM - 12:30PM	CIGRE USNC Executive Committee Lunch	Chris Root - CIGRE USNC	Raleigh Convention Center Room 201
12:30 - 12:45PM	Transitional Break		
12:45 - 2:15PM	CIGRE NGN Paper Competition	James Berger - POWER Engineers Logan Rolles - Burns & McDonnell	Raleigh Convention Center Ballroom C
2:15 - 2:30PM	Afternoon Break		

TUESDAY, NOVEMBER 12

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
2:30 – 4:00 PM	Paper Session 2A	Authors	Raleigh Convention Center Room 305A
	<i>Bulk Power System Dynamic Contingency Manager - Chilean Grid Case Study</i>	W. O. Bojorquez - SPLIGHT North America , C. Caldard, A. Hoese	
	<i>Comparison of Different Line Models for Switching Overvoltages Simulations</i>	Z. Wang - GE Vernova , P. Wang, R. Zhang	
	<i>Identification of Impact Regions for Adaptive Distribution System Modeling in Transmission-Level Dynamic Contingency Analysis</i>	Q. Huang - Colorado School of Mines , O. Cornmesser	
	<i>Regional Grid Inertia Estimation and Frequency Nadir Prediction Considering Renewable's Fast Frequency Response</i>	L. Zhu - Electric Power Research Institute (EPRI) , M. Elnasry, E. Farantatos, C. Zhang, D. Ramasubramanian, P. Mitra, V. Singhvi	
2:30 – 4:00PM	Paper Session 2B	Authors	Raleigh Convention Center Room 305B
	<i>Reverse Power Flow in Transformers</i>	H. Sanchez-Reategui - Alectra Utilities Corporation , M. D. N. Dang, M. Alimardani	
	<i>Application of Probabilistic Bayesian Networks on Transformer Condition Assessment</i>	L. Cheim - Hitachi Energy , A. Sbravati, K. Mani	
	<i>Evaluating the Impact of Multiple DER Aggregators on Wholesale Energy Markets: A Hybrid Mean Field Approach</i>	A. L. Liu - Purdue University , J. He	
	<i>Visions and Challenges for DER Participation in Electric Markets: A Distribution Perspective</i>	J. Mast - POWER Engineers, Inc. , S. Thompson, J. Burger, J. Lupton	
2:30 – 4:00PM	Paper Session 2C	Authors	Raleigh Convention Center Room 306A
	<i>Seasonal Overload Mitigation in Rural Distribution Feeders using Mobile Energy Storage System</i>	F. Katiraei - Quanta Technology , M. Medeiros, M. V. Tol, C. Pang, M. Awadallah, K. Ramachandran, S. Morovati, S. Chuangpishit	
	<i>Hosting Capacity Enhancement Strategies Using Data Analytics & Automation</i>	L. Tao - Commonwealth Edison , E. Farquharson, W. Nation, S. Pandey	
	<i>Comparative Analysis of IBR Voltage Control for DER Hosting Capacity</i>	A. Sproul - RLC Engineering , M. Hanestad, J. Elwell, A. Musavi, J. Geary, T. Stanley	
	<i>Optimal Collector System Configuration for Utility-Scale Renewable Energy Projects</i>	G. Wollam - Quanta Technology	
2:30 – 4:00PM	Paper Session 2D	Authors	Raleigh Convention Center Room 306B
	<i>Practical Time Synchronization Design for Substations</i>	G. Kaur - Quanta Technology , S. Narayanan, R. Hunt	
	<i>Implementation of the Automated Relay Testing and Management Solution: Application and Use Cases</i>	J. Sykes - Quanta Technology & W. Wang - Hydro One Network Inc. , J. Wagner, H. Khani, H. Hujan	
	<i>Criteria and Evaluation for an Event Record Retrieval System</i>	M. B. Gani - Quanta Technology , R. Hunt	
	<i>Benefits and Recommendations for Using Classic Protection Functions in Transmission Lines Interfacing IBRs Compliant to IEEE 2800</i>	P. Pinheiro - University of Idaho , S. Chakraborty, R. Bainy, H. Lei, B. K. Johnson, A. Alomari, S. Manson, J. Wang, R. Mahmud, A. Hoke, C. Kruse	
2:30 – 4:00PM	Paper Session 2E	Authors	Raleigh Convention Center Room 306C
	<i>Solving the Unit Commitment Problem Utilizing a Hybrid Quantum-Classical Computing Method</i>	T. Christeson - University of Denver , A. Khodaei	
	<i>Transmission System Impact Evaluation and Mitigation Method for Public Safety Power Shutoffs</i>	Y. Gao - Quanta Technology , A. Daneshpooy, S. Szydluk, R. Anilkumar	
	<i>Measuring Risk in the Grid with Marginal Metrics</i>	F. S. Yanikara - Newton Energy Group , A. Rudkevich, R. Philbrick	
	<i>Adoption of Network Model Management in the North American Power Industry</i>	J. Velez - Quanta Technology , D. Qureshi, D. Haughton, G. Webster, M. Chapariha, T. Chang	
4:00 – 4:15PM	Transitional Break		

TUESDAY, NOVEMBER 12

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
4:15 – 5:45PM	Paper Session 3A		Raleigh Convention Center Room 305A
	Evolving Planning Criteria for a Sustainable Power Grid	M. Lauby - North American Electric Reliability Corporation (NERC) , V. Vittal, D. Novosel, C. Singh, T. Overbye, A. Bose, G. van Welie	
	The Impact of U.S. Reindustrialization on the Power Demand	P. Vij - Electric Power Research Institute (EPRI) , P. Patel	
	Utility Resource Planning for Electric Vehicles & Beneficial Electrification	G. DiAntonio - S&C Electric Company	
	Towards a Greener Grid: Sustainable Methods in Substation Design and Construction	S. Murugappan - Hitachi Energy , L. Rodriguez, P. Skarby, K. L. Amaya, N. Reppas, M. Christerson	
4:15 – 5:45PM	Paper Session 3B		Raleigh Convention Center Room 305B
	Comparing Advanced Cores - Achieving Maximum Grid Capacity	D. Berkowitz - Bekaert	
	In-Situ Application of Capacity Enhancing Photonic Coatings to Overhead Conductors: Static Re-rating without Reconductoring	N. Coogan - AssetCool , A. Arevalo, O. Higbee, R. Dorzi, T. Saxena, R. Parker, G. Omahen, M. Kolenc, R. Marusa, U. Bavcar	
	Conductor Icing Risk Assessment and Detection with Weather and Position Monitoring	K. Engel - LineVision Inc. , R. Grudt, S. Pandey, W. Nation	
	Automated Method for Transmission Line Constants Calculation to Improve Efficiency and Accuracy	M. Malki - Quanta Technology , Y. Wang, S. Karki, K. Judd, A. Hernandez	
4:15 – 5:45PM	Paper Session 3C		Raleigh Convention Center Room 306A
	Transforming Protection & Control (P&C) Data: ConEdison's Approach to Data Alignment	N. Klingerman - Quanta Technology , C. Gil, N. Manikarnika, B. Varughese	
	The BC Hydro Distribution IED Gateway System for Managing Thousands of Grid Modernization Devices	A. Hamdon - SUBNET Solutions Inc. , K. Stich, A. Cheung, G. Ringham, S. Mercer	
	Electrical Characterization of Vegetation Contacts with Medium Voltage Conductors: Summary of Field Experiments	J. A. Wischkaemper - Texas A&M University , C. L. Benner, B. D. Russell, K. Manivannan	
	National Grid Pilot of Phase-EQ Technology	M. Hanestad - RLC Engineering , M. Smith, A. Sproul, C. Murray	
4:15 – 5:45PM	Paper Session 3D		Raleigh Convention Center Room 306B
	Operations of Future and Data-driven Uncertainty Management: Net Uncertainty Forecast and Dynamic Reserve in Midcontinent Independent System Operator	A. Ghesmati - Midcontinent Independent System Operator (MISO) , C.-H. Tsai	
	An Automation Toolset for Studying and Enhancing the Transfer Capability of Power Systems	S. Lamichhane - Washington State University , Z. Jing, K. A. Vance, N. A. Rice	
	Generator Prioritization for Voltage Control Based on Bus Voltage Sensitivity	B. Steele - Oklahoma Gas & Electric , F. Ma	
	Keep Your Grid Model to Yourself: Co-simulation for Multi-entity Planning and Simulation Without Needing Detailed Model Exchange	B. Palmintier - National Renewable Energy Laboratory (NREL) , T. Hardy, P. Top, A. Latif, J. Keen	
4:15 – 5:45PM	Paper Session 3E		Raleigh Convention Center Room 306C
	A System Architecture for Wildfire Situational Awareness Using Artificial Intelligence and Remote Sensing	A. Arabnya - University of Denver , M. Salimitari, A. Khodaei, A. Paaso	
	Insights from PJM Interconnection's Exploration of Artificial Intelligence	L. Walter - PJM Interconnection , A. Cabezas, N. Militello, J. Gluck, E. Kovler, M. Luna, E. Lynch	
	Enhancing Testing Strategies for Machine Learning, Digital Twin, and Artificial Intelligence Applications in Power Systems: A Risk-Based Approach	G. Lopes - Siemens Energy , Y. Rossini, L. Tao, B. Stuck, R. Mishra	
	Advancing Power Grid Intelligence: Integrating Data Models and Real-Time Analytics for Improved System Management and Operation	M. C. Cinalioglu - Siemens Energy , Y. Kaya	
6:00 – 10:00PM	CIGRE Welcome Reception Sponsored by Quanta Technology		North Carolina Museum of Natural Sciences 11 W Jones St, Raleigh, NC 27601

WEDNESDAY, NOVEMBER 13

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
7:00AM – 4:30PM	CIGRE – Registration/Badge Pickup <i>*Breakfast is on your own unless you've signed up for the NGN Breakfast event*</i>		Raleigh Convention Center North Main Lobby
6:45 – 7:35AM	NGN Breakfast	Logan Rolles – <i>Burns & McDonnell</i>	Sheraton Hotel Hannover Ballroom
7:45 – 8:15AM	CIGRE General Session & Keynote Address	Chris Root – <i>CIGRE USNC</i> Ed Baine – <i>Dominion Energy</i>	Raleigh Convention Center Ballroom C
8:15 – 8:30AM	NGN Paper Award Winner Announcement	Jodie Lupton – <i>POWER Engineers</i>	Raleigh Convention Center Ballroom C
8:30 – 9:30AM	CIGRE Panel Session: End-to-End Grid Resilience for the Energy Transition	Moderator: John McDonald – <i>JDM Associates, LLC.</i> Panelists: Dr. Mikael Dahlgren – <i>Hitachi Energy</i> Thomas Schmidt – <i>Ampacimon</i> Jeff Scheb – <i>Landis + Gyr</i>	Raleigh Convention Center Ballroom C
9:30 – 9:45AM	Morning Break		
9:45 – 11:15AM	Paper Session 4A	Authors	Raleigh Convention Center Room 305A
	<i>Interconnected Ground Grids and Their Design - A Case Study</i>	M. Kavimandan - Burns & McDonnell	
	<i>Benefits of Automated Overcurrent Protection Analysis of Distribution Grids</i>	S. Berhane - S&C Electric Company , B. Merendic, M. Meisinger, Y. Sharon	
	<i>A System Design Framework for Wildfire Risk Management in Electric Utilities</i>	A. Majzoobi - Quanta Technology , A. Arabnya, D. Haughton, A. Paaso	
	<i>A Quantitative Wildfire Risk Assessment Framework for Electric Utilities</i>	D. Haughton - LUMA Energy , H. A. Gil, A. Majzoobi, A. Arabnya, A. Paaso	
9:45 – 11:15AM	Paper Session 4B	Authors	Raleigh Convention Center Room 305B
	<i>A Novel Approach to the Determination of Asset Criticality and its Use in Asset Replacement Planning</i>	S. Varadan - Quanta Technology , K. Vu, J. Schmidt, J. Schraufnagel	
	<i>Storage as a Transmission Asset in the Grid of the Future: Usage and Business Cases of BESS</i>	S. Subramanian - Saft Batteries	
	<i>ABCs of Asset Investment Planning</i>	J. Schmidt - Quanta Technology , V. Chhabra, S. Varadan	
	<i>Load Forecasting Analysis for a Small Island Utility: Identifying Challenges to a Modernizing Grid</i>	K. Inge - MPR Associates, Inc. , C. Menning	

WEDNESDAY, NOVEMBER 13

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
9:45 – 11:15AM	Paper Session 4C	Authors	Raleigh Convention Center Room 306A
	<i>Comprehensive Cybersecurity Technology for Critical Power Infrastructure AI-Based Centralized Defense and Edge Resilience</i>	S. B. A. Venkata - Resource Innovations , J. Dirkman, F. Magnago	
	<i>Monitoring and Detection of Anomalies on Power Network Equipment Via SNMP and Syslog Can Pay Dividends</i>	D. Williams - Burns & McDonnell , R. Luechtefeld, D. Eckert	
	<i>Active Power Malicious Attack Identification</i>	G. E. N. Piegan - George Mason University	
	<i>ÉCLAIR: A High-Fidelity Aerial LiDAR Dataset for Semantic Segmentation</i>	A. Umashankar & L. Stannis - Sharper Shape , I. Melekhov, H.-J. Kim, D. Argyle	
9:45 – 11:15AM	Paper Session 4D	Authors	Raleigh Convention Center Room 306B
	<i>Direct Transfer Trip Implementation for Multi-terminal Lines Using IEC61850</i>	K. Malpede - Commonwealth Edison , M. Pregara	
	<i>Unified Grid Control Platform Requirements of Process Bus Test Results</i>	P. Myrda - Electric Power Research Institute (EPRI) , G. Wilson, H. Falk, S. McGuinness, E. Udren	
	<i>Leveraging IEC 61850 Functional Simulation to Reduce Risk, Cost, and Development Time in Every Phase of a Distributed Automation System</i>	J. Moore - Triangle MicroWorks, Inc. , D. Goughnour, S. Shanghavi	
	<i>Control of 61850 GOOSE Lockout Relays via HMI Visualization</i>	A. Fishbeck - Commonwealth Edison , V. Lazzaro	
9:45 – 11:15AM	Paper Session 4E	Authors	Raleigh Convention Center Room 306C
	<i>High-Fidelity Synchronized Measurements to Support Grid Resiliency and Asset Management in Puerto Rico</i>	F. Rahmatian - NuGrid Power Inc. , J. R. Marina, S. E. Vega Blasini, A. Paaso	
	<i>LUMA Energy Large Scale Distribution Feeder Protection Modernization Project</i>	B. Zarovniaev - Quanta Technology & C. T. Ocasio Rodriguez - LUMA Energy , H. Self, T. Fix, J. Aguilar, A. Smit, J. Hudson, J. N. Ferrer Ortiz	
	<i>Planning Synchronized Measurement Technology Deployment in LUMA Energy</i>	E. Udren - Quanta Technology , D. Brancaccio, B. Enayati, F. Aminifar, J. Sykes, M. Lelic, D. Hart	
	<i>Voltage Optimization under High Renewable Penetration: Tackling Reactive Power Challenges</i>	F. Magnago - Resource Innovations , R. Treinen, M. Sadagopan, R. Emami, M. Prais, W. Vance, J. Bright, N. Vempati	
11:15 – 11:30AM	Transitional Break		
11:30AM – 12:45PM	Buffet Style Lunch Technical Activities Overview	John McDonald – <i>JDM Associates, LLC.</i> Philippe Adam – <i>CIGRE</i>	Sheraton Hotel Hannover Ballroom
12:45 – 1:00PM	Transitional Break		
1:00 – 2:00PM	CIGRE Panel Session: Interconnection and the Evolving Grid	Moderator: Jessica Lau Panelists: Maigha – <i>Exelon BSC</i> Myra Sinnott – <i>Silicon Ranch</i>	Raleigh Convention Center Ballroom C
2:00 – 2:15PM	Afternoon Break		

WEDNESDAY, NOVEMBER 13

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
2:15 – 3:45PM	Paper Session 5A	Authors	Raleigh Convention Center Room 305A
	<i>ComEd's Commissioning a Digital Smart Substation (DSS)</i>	J. Bettler - Commonwealth Edison , A. Jaskoviak	
	<i>Virtual Protection Relay: Quantifying the Reality</i>	M. Smith - Dell Technologies , J. Ruiz, B. Gwyn, A. Sivesind	
	<i>Migrating to Software-defined Architectures for T&D Substations</i>	T. Godart - Fidesty, LLC. , P. Khajuria	
	<i>Towards the Digitalization and Virtualization of Power Grids</i>	R. Boyer - Dell Technologies , D. Tzelepis, D. N. Trakas, A. Rousis	
2:15 – 3:45PM	Paper Session 5B	Authors	Raleigh Convention Center Room 305B
	<i>LUMA's AMI Journey: Leveraging Technology and Data Analytics</i>	L. Rossi - Quanta Technology , S. Varadan, D. Larkin	
	<i>Leveraging Data Science for Renewable Energy Planning and Operations</i>	V. Kumar - POWERGRID Corporation of India Limited	
	<i>The Challenges and Best Practices of Capturing Utility Asset Data for Puerto Rico</i>	S. Szekeres - Quanta Technology , B. Enayati, A. Paaso, C. Segneri, A. Ilkani	
	<i>Asset Condition Assessment: Using Asset Information to Inform Risk-Based Decisions</i>	J. Schraufnagel - Quanta Technology , L. Randle-Smith, J. McNulty	
2:15 – 3:45PM	Paper Session 5C	Authors	Raleigh Convention Center Room 306A
	<i>Leveraging Small-Signal Analysis to Address Dynamic Stability in Inverter-Based Resource Dominated Networks</i>	H. Davarikia - Electric Reliability Council of Texas (ERCOT) , Y. Cheng, S.-H. Huang	
	<i>Data-Driven Inverter-Based Resources Short Circuit Modelling Using Deep Learning</i>	Z. Cheng - Quanta Technology , J. Holbach, S. Narayanan, D. G. Hart	
	<i>Beyond EMT Model Collection: Model Validation and Use</i>	J. Olowolaju - University of Nevada-Reno , G. M. Ilunga, Z. Zhang, A. Pinceti, I. O. Korede, K. A. Vance	
	<i>EMT Model Development and Power Quality Investigation of a Utility Solar Site</i>	S. Banik - North Carolina State University , G. M. Ilunga, G. B. Alvarez, A. T. Valdez, I. O. Korede, K. A. Vance	
2:15 – 3:45PM	Paper Session 5D	Authors	Raleigh Convention Center Room 306B
	<i>Microgrid Challenges: Research and Tribal Community Perspectives</i>	G. E. N. Piegan - George Mason University , L. Huang	
	<i>Cost-Benefit Assessment of MBB-Based Microgrids</i>	A. K. Jain - Pacific Northwest National Laboratory (PNNL) , C. Qi, C. C. Liu, R. Zhang, D. Boroyevich, H. B. Ashraf, B. Somda, L. Qi, J. O. P. Pinto, M. M. Montejano, M. S. Chinthavali, A. K. Bharati, F. Tuffner, S. Acharya, H. Mahmood, P. Mana, R. Hovsopian, S. Chanda, D. Ton	
	<i>Empowering Grid Resilience: Leveraging Distributed Energy Resources</i>	K. Zeng - POWER Engineers , D. Paresa, M. Adham, R. Bass	
	<i>A Practical Protection Scheme for a Partial Feeder Microgrid with Dynamic Point of Common Coupling</i>	L. Zhu - Electric Power Research Institute (EPRI) , C. Zhang, V. Ma, Y. Su, F. Wang, L. Tolbert, Y. Liu, H. Yin, I. Ray, D. Li, J. Glass, R. Johnson	
2:15 – 3:45PM	Paper Session 5E	Authors	Raleigh Convention Center Room 306C
	<i>Impact of Geomagnetically Induced Currents on Differential Protection for Transmission-Level Transformers</i>	L. Chebbo - University of Connecticut , A. A. Ademola, A. Mohammadhassani, I. O. Korede, K. A. Vance	
	<i>Observed Effects of Geomagnetic Disturbances from Wide Area Monitoring System</i>	T. Laughner - Lifescale Analytics , J. Anderson, S. Heckman, B. Marshall	
	<i>Impact of Characteristics of GIC Signature on Thermal Effects of GIC on Power Transformers</i>	R. Girgis - Hitachi Energy , M. Bernesjo	
	<i>Enhancing Power Grid Utilization and Reliability: Simulation and Cost Models for Advanced Power Flow Control Technologies</i>	S. Guggilam - Electric Power Research Institute (EPRI) , A. Del Rosso	

WEDNESDAY, NOVEMBER 13

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Speakers	Location
3:45 - 4:00PM	Transitional Break		
4:00 - 5:00PM	CIGRE Panel Session: Future Outlook of Transmission: Superhighway or Bottleneck	Moderator: Wayne Bishop - <i>Quanta Technology</i> Panelists: Joe Svachula - <i>Exelon</i> Mark Carpenter - <i>ONCOR</i> Mark Lauby - <i>NERC</i>	Raleigh Convention Center Ballroom C
5:30 - 7:30PM	NGN Dinner Sponsored by Burns & McDonnell and POWER Engineers	Doug Jones - <i>POWER Engineers</i>	<i>Invitation Only</i>

THURSDAY, NOVEMBER 14

TECHNICAL PROGRAM OPENS AT 7:45AM

Time	Event	Details	Location
8:00AM - 12:00PM	Tutorial Addressing Integration Challenges of Voltage Source Converters (VSCs)	Hosted by Mitsubishi Electric Power Products, Inc. Includes a box lunch	Raleigh Convention Center Room 305A
8:30 - 11:30AM	Tour Smart Wires Laboratory Tour	Hosted by Smart Wires GoGo Bus Tours Includes a box lunch	Meet in Sheraton Hotel Lobby
10:00AM - 1:00PM	Tour/Tutorial Value of Hardware-in-the-Loop (HIL) Testing	Hosted by Quanta Technology GoGo Bus Tours Includes a box lunch	Meet in Sheraton Hotel Lobby
10:30AM - 12:00PM	Tour North Carolina State University (NCSU) FREEDM Center Tour	Hosted by NCSU GoGo Bus Tours Lunch provided by Hitachi Energy	Meet in Sheraton Hotel Lobby
2:00PM	Adjourn		