

NERC Industry Engagement Workshop – Reliable IBR Integration and Milestone 3 of FERC Order 901 Day 1 Conference Bios

Presenter – Opening Keynote



James B. Robb
President and CEO, NERC

James (Jim) B. Robb assumed the role of NERC’s president and chief executive officer (CEO) in April 2018. Robb oversees NERC’s mission of assuring the reliability and security of the North American bulk power system. As president and CEO, Robb leads the Electric Reliability Organization (ERO) and is responsible for key programs, including those programs focused on development of mandatory NERC Reliability Standards, the Compliance Monitoring and Enforcement Program, situational awareness, event and risk analysis, reliability assessments and forecasting, and cyber and physical security, affecting approximately 1,400

bulk power system users, owners, and operators. He is also responsible for the performance of the Electricity Information Sharing and Analysis Center (E-ISAC) and key government partnerships.

Robb has more than 35 years of experience in the energy sector as an engineer, consultant, and senior executive. Prior to becoming WECC’s CEO, he held three major leadership roles in the industry: senior vice president at Northeast Utilities (now Eversource Energy); senior vice president at Reliant Energy (now part of NRG Energy); and partner at McKinsey & Company. During his 15-year career at McKinsey, he worked closely with prominent electric power companies in California, western Canada, the Pacific Northwest, and the Rocky Mountain states and served clients in Western Europe, South America, and New Zealand. He is a frequent speaker at industry events on the evolution of the electric power system, cyber security, integration of variable generation, and the increasing interdependency of electric and natural gas reliability.

Presenter – Opening Remarks



Mark Lauby

Senior Vice President and Chief Engineer, NERC

Mark G. Lauby is senior vice president and chief engineer at NERC. Mr. Lauby joined NERC in January 2007 and has held several positions, including vice president and director of Standards and vice president and director of Reliability Assessments and Performance Analysis.

Prior to joining NERC, Mr. Lauby worked for the Electric Power Research Institute (EPRI) for 20 years, holding several senior positions, including: director, Power Delivery and Markets; managing director, Asia, EPRI International; and manager, Power System Engineering in the Power System Planning and Operations Program. Mr. Lauby began his electric industry career in 1979 at the Mid-Continent Area Power Pool in Minneapolis, Minnesota. His responsibilities included transmission planning, power system reliability assessment, and probabilistic evaluation

Presenter – Evolution of Grid Characteristics with Changing Resource Mix



Aung Thant

Senior Engineer for the Engineering and Security Integration department, NERC

Aung Thant is the Senior Engineer for the Engineering and Security Integration department at North American Electric Reliability Corporation (NERC), focusing on identification of IBR-related reliability risks and mitigation measures. Aung coordinates EMT Task Force and participates on the Inverter-Based Resource Performance Subcommittee (IRPS). Aung's career in electric power industry includes power system modeling and simulation specializing in electromagnetic transient (EMT) studies, hardware-in-the-loop (HIL) testing of protection, automation and control of transmission systems, microgrids and electric storage systems, development of ultracapacitor energy storage systems, modeling and interconnection of large-scale, grid following and grid forming battery energy storage systems.



Evan Mickelson

Power Systems Engineer in Advanced System Analytics & Modeling team, NERC

Evan Mickelson graduated from the University of Washington (Seattle) in 2020 with his B.S. in Electrical Engineering. He is currently a Power Systems Engineer at NERC working in the Advanced System Analytics & Modeling team. His current focuses include interconnection-wide frequency response analysis, large load integration, and IBR dynamic studies. Evan works on these topics through engagement with working groups and subcommittees under the NERC Reliability and Security Technical Committee (RSTC) including the Frequency Working Group (FWG), Resources Subcommittee (RS), Large Load Task Force (LLTF), Electromagnetic Transient Modeling Task Force (EMTTF), and the Inverter-Based Resource Performance Subcommittee (IRPS).



Hasala Dharmawardena

Senior Engineer in Power System Modeling Studies, NERC

Hasala Dharmawardena is a Senior Engineer in Power System Modeling Studies at the North American Electric Reliability Corporation (NERC). He received the PhD degree from Clemson University in 2022, and the MSc Degree in 2015 from the Norwegian University of Science and Technology (NTNU), both in Electric Power System Engineering. He currently focuses on Dynamic Load Modeling of large loads and load impact assessments, methods for improving the accuracy of dynamic simulations for interconnection-wide studies, as well as the applications of Essential Reliability Services to improve grid reliability. Hasala serves as the NERC Load Modeling Working Group Coordinator. He is a registered professional engineer in the State of California.

Panelists – Grid Stability Challenges and Services from Inverter-Based Resources (IBRs)



Duncan Burt

Chief Strategic Officer, Reactive Technologies

Duncan was formerly Operations Director for the GB Electricity and Gas Transmission Grids and Chief Sustainability Officer for National Grid Group. In these roles, he oversaw the development of the British Power Grid as it became the fastest decarbonizing grid in the G20, saw the first coal-free operation of the electricity system, and set a strategy for zero carbon operation by 2025. Alongside this, Duncan worked closely with a range of TSOs across the globe in the run-up to COP26 in Glasgow and was named one of the Global Top 100 Sustainability leaders by Sustainability Magazine.



Julia Matevosyan

Associate Director, Chief Engineer, ESIG

Julia has more than 20 years of experience in the power industry. Prior to joining ESIG, Matevosyan was the Lead Planning Engineer of the Electric Reliability Council of Texas (ERCOT). In her time with ERCOT, she worked on adequacy of system inertial response, system flexibility, frequency control and performance issues related to high penetration levels of inverter-based generation and ancillary services market design. Julia received her BSc from Riga Technical University in Latvia, and her MSc and PhD from the Royal Institute of Technology (KTH) in Sweden.

Deepak Ramasubramanian

**Sr. Technical Leader, Transmission Operations and Planning
Energy Delivery and Customer Solutions, EPRI**



Deepak Ramasubramanian is a Senior Technical Leader at the Electric Power Research Institute (EPRI) in the Transmission Operations and Planning Group.

In the UNIFI Consortium, he serves as an EPRI representative on the leadership team, co-leads the Modeling & Simulation area, and leads the Standards Area.

He received his Ph.D. degree in Electrical Engineering from the Arizona State University, Tempe, USA in 2017 and his M.Tech. degree in Power Systems from the Indian Institute of Technology Delhi, New Delhi, India in 2013.

Deepak joined EPRI in 2017 where his work is in the area of modeling, control and stability analysis of the bulk power system with focus on the impacts of large-scale integration of inverter interfaced generation and load.

Through his work at EPRI, he engages with various utilities and transmission system operators around the world to study the impact of increase in inverter-based resources in their system. Many of his projects have resulted in technology transfer to commercial simulation software and also become part of the utility planning process/guide.

He is a recipient of a 2022 IEEE PES Chapter Outstanding Engineer Award, an Energy Systems Integration Group (ESIG) Excellence Award, North American SynchroPhasor Initiative (NASPI) Outstanding Graduate Student Award, and the Power System Operation Corporation (POSOCO) Power System Award.



Kyle Thomas

Vice President of Engineering & Compliance Services, Elevate Energy Consulting

Kyle Thomas is the Vice President of Engineering & Compliance Services at Elevate Energy Consulting. He is responsible for the execution of engineering and technical projects, client work and strategies, business development, industry engagement and leadership, and organizational growth. Kyle is a licensed Professional Engineer in the Commonwealth of Virginia and has leadership and technical expertise in electric transmission and distribution, facility ratings, NERC compliance, resiliency, system restoration, planning,

integration of renewable resources, large loads, data centers, power system protection and control, automation, control, wide-area measurements, fault analysis, and system modeling and simulations. He is a Senior Member with the IEEE and is actively involved in other industry groups including CIGRE, ESIG, GWA, NASPI, the Transient Recorder User Council, the Electric Power Research Institute, and the North American Transmission Forum. He has held various leadership roles in these international working groups and has more than 20 industry publications.



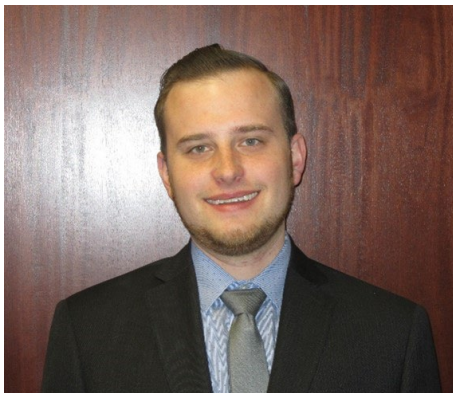
Todd Chwialkowski

Director, Transmission Regulatory and Compliance, EDF Renewables

Todd Chwialkowski is a Director of Regulatory and Compliance for EDF Renewables. He is currently based out of Denver, CO. Prior to this position at EDFR, Todd worked as a Manager of NERC Business Development and NERC Compliance Subject Matter Expert, and Senior Project Manager, Cyber Security, contracting at the Department of Interior, Bureau of Reclamation in their Hydro - Power Resources Office. He earned an engineering degree from the University of Minnesota, and his MBA from the American Military University. He is

currently a Certified Information Systems Security Professional (CISSP) and a Certified Information Systems Auditor (CISA).

Moderator



John Paul "JP" Skeath

Manager of Engineering and Security Integration, NERC

John Paul "JP" Skeath graduated from Colorado School of Mines in 2017 with his B.S. in Electrical Engineering with a minor in Computer Science and from Georgia Institute of Technology in 2018 with an M.S. in Electrical and Computer Engineering.

He is currently employed at the North American Electric Reliability Corporation (NERC) as a manager of Engineering and Security Integration tasked to identify risk and design solutions to emerging energy problems. He currently is focused on Distributed Energy Resources and the impacts of aggregate DER under independent versus dependent control as seen by the bulk system.

JP is involved in various NERC Reliability and Security Technical Committee (RSTC) subgroups, including the System Planning Impacts of DER Working Group (SPIDERWG) and Electric Vehicle Task Force (EVTF). His current focus is related to DER modeling, model verification, impacts of mass electrification of EVs, and incorporating cyber concepts into transmission planning processes.

Panelists – Best Practices on IBR Modeling and Validation



Christopher Milan

Vice President of Electrical Services, Crestcura

Christopher Milan

26 years of engineering and commission experience. He also has 15+ years of experience in the renewable industry with a proven track record of quality project management and commissioning testing of PV Solar and BESS facilities. Mr. Milan has commissioned 6+ GW of PV Solar and High Voltage Systems projects throughout North America and additionally has worked on projects in Asia, Australia, and South America.



Miguel Acosta

Senior Specialist, Vestas

Miguel A. Cova Acosta is a power system engineer with 15+ years of experience in the renewable energy sector. Currently a Senior Specialist at Vestas, his expertise includes grid modeling, power system analysis, and global grid code compliance. He holds an M.Sc. in Energy Efficiency and Renewable Energy from the University of Zaragoza, a B.Sc. in Electrical Engineering from Universidad Simón Bolívar, and has received an Exec. Certificate in Strategy and Innovation from MIT Sloan.

With experience in Denmark, Singapore, and the U.S., Miguel has collaborated with global teams on modeling development and conducted grid interconnection studies across the world. His work spans various regulatory frameworks and market requirements, contributing to advancements in renewable energy technologies. A holder of multiple patents in wind turbine operation and grid compliance, Miguel has authored technical publications, contributed to industry standards, and actively participates in workshops and discussions promoting innovation in the field.



Sebastian Achilles

General Manager-Grid Integration and Stability, GE Vernova Consulting Services (CS)

Sebastian leads a global team of experts performing electrical studies and analytics related to design, control and operation of transmission and generation equipment and solutions.

Sebastian's team supports GEV businesses including wind generation, gas power generation, solar generation, large battery systems and grid infrastructure. This support includes product improvements related to grid functionalities, simulation models for interconnection processes, model validation and plant level interconnection solutions for GEV customers globally. His team supports several product programs and dozens of renewable projects every year affecting thousands of turbines and converters.

Sebastian filed over 25 patents related to IBR controls and compatibility with the Grid Transformation. He published numerous papers and presented in numerous panels at IEEE, CIGRE, ESIG and global wind events. He served as CIGRE B4 US country leader, Secretary of CIGRE WG on IBR connection to weak systems (B4-62) and ESIG Reliability WG Co-Chair.



Larry Truong

Product Manager, TMEIC

Larry Truong is the Product Manager for TMEIC. He is responsible for managing the company's inverter portfolio and the development of the next generation utility-scale power conversion solutions for the solar and energy storage markets.

He holds bachelor's and master's degrees in electrical engineering from the University of Rhode Island, an MBA from the University of Chicago Booth School of Business, and a master's degree in cybersecurity from the Georgia Institute of Technology.

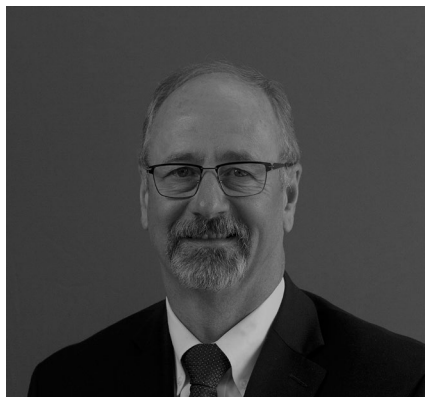


Rajni Burra

Vice President of Plant Operational Technology, Terabase Energy

Rajni Kant Burra, Ph.D., currently serves as the Vice President of Plant Operational Technology at Terabase Energy, where he leads the development of SCADA, controls, and related solutions for solar and hybrid fuel source systems. With extensive expertise in renewable energy, Rajni has previously co-founded REPlantSolutions, providing advanced solar plant technologies, and held leadership roles in controls and hybrid technologies at First Solar and GE Renewables. Rajni has been a key innovator in plant control technologies, hybrid system integration, and renewable energy solutions, consistently advancing the boundaries of clean energy innovation.

Moderator



Rich Bauer

Principal Engineer for Event Analysis, NERC

Rich Bauer is the Principal Engineer for Event Analysis for the North American Electric Reliability Corporation (NERC). Joining NERC in January 2013, Rich promotes the understanding and learning from events and occurrences that are experienced on the Bulk Electric System. Rich performs forensic analysis of major system disturbances as well as cause analysis of events through the NERC Event Analysis Process. Rich participates on the NERC System Protection and Control Working Group, NERC Event Analysis Subcommittee and the NERC Inverted-based Resource Subcommittee as well as the IEEE Power System Relaying and Control Committee.

Panelist(s) – IBR Modeling Challenges



Farhad Yahyaie

Head of Power System Studies and Modeling, Elevate Energy Consulting

Dr. Farhad Yahyaie has a passion for engineering and problem solving, with over 14 years of industrial, research, and teaching experience in power systems. His expertise encompasses a wide range of power system studies, including dynamic stability assessment, electromagnetic transient studies, model development, and model validation for synchronous generators and renewables. Dr. Yahyaie has conducted numerous advanced system studies and taught training courses to engineers worldwide, drawing on his familiarity with regulatory frameworks and industry standards. Farhad has previously worked as

the Technical Lead in the Power System Consulting team at Siemens PTI Canada and as a Senior Power Systems Engineer and Project Leader at Powertech Labs Inc. He received his PhD from University of Toronto and is a registered professional engineer in BC.



Todd Chwialkowski

Director, Transmission Regulatory and Compliance, EDF Renewables

Todd Chwialkowski is a Director of Regulatory and Compliance for EDF Renewables. He is currently based out of Denver, CO. Prior to this position at EDFR, Todd worked as a Manager of NERC Business Development and NERC Compliance Subject Matter Expert, and Senior Project Manager, Cyber Security, contracting at the Department of Interior, Bureau of Reclamation in their Hydro - Power Resources Office.

He earned an engineering degree from the University of Minnesota, and his MBA from the American Military University. He is currently a Certified Information Systems Security Professional (CISSP) and a Certified Information Systems Auditor (CISA).



Katie Iversen

Senior Manager, Generator Modeling & Power System Studies, AES US Renewables

Katie Iversen serves as a Senior Manager at AES US Renewables, where she leads a team of engineers responsible for renewable energy plant power flow models and studies for the project lifecycle – from interconnection to operations.

Katie's career began at WECC, where she developed her passion for renewable energy while investigating the Canyon 2 Fire and Angeles Forest disturbance alongside many skilled industry colleagues. This experience led her to join sPower (now AES) in 2019, where she has managed power flow models, studies, and various compliance aspects. In this role, Katie gained valuable perspective as she became familiar with the innerworkings of developer and owner modeling and power flow, from the background of the regulator and investigator of disturbances, ultimately living the recommendations from the developer side.

Katie's team is responsible for modeling an operational fleet of renewable energy projects totaling around 8.6GW, including 63 operational NERC-registered projects and 51 GW in development, which includes projects currently under construction. During her tenure, Katie has overseen the onboarding of approximately 36 NERC-registered projects totaling 5.6GW.

Katie holds a Master of Science in Electrical Engineering and an MBA from the University of Utah. She also serves as the vice chair of Project 2020-06.



Mohamed Khatib

Director, Grid Modelling and Compliance, Invenergy

Mohamed Khatib is a Director of Grid Modelling and Compliance at Invenergy based in Chicago, IL. In his current role he leads a team of SME providing modelling and technical support throughout the lifecycle of Invenergy's renewable projects from interconnection, engineering, commissioning, and operations. Prior to Invenergy, Mohamed worked for the IESO, Sandia National Labs and as a consultant for several ISOs and developers.

Mohamed holds a PhD in Electrical and Computer Engineering from the University of Waterloo and Masters and Bachelor of Science degrees in Electrical Engineering from Alexandria University. He is a licensed professional engineer in Ontario and a Senior IEEE member.



Zhi Qu

Engineering Manager, NERC and Regulatory Compliance, EPE Consulting

Zhi Qu is an engineering manager in EPE's NERC and Regulatory Compliance team with many years of experience in the testing and modeling of both conventional and renewable generators. He is an expert in data acquisition system design and has tested and modeled generators in many different regions across North America including AESO, CAISO, ERCOT, IESO, ISO-NE, MISO, NYISO, and SPP. He is very familiar with NERC generator modeling compliance requirements such as MOD-026 and MOD-027 as well as NERC protection coordination requirements such as PRC-019 and PRC-024. Mr. Qu has been working very closely with a lot of renewable energy OEMs such as Vestas and GE for the compliance of different ERCOT dynamic model requirements documented in the ERCOT Nodal Operating Guide (NOG), the ERCOT Planning Guide (PG), and the ERCOT Dynamic Working Group (DWG) Procedure Manual. The studies he performs in the ERCOT region include power plant detailed and equivalent model development, model quality tests (MQT), user-defined model (UDM) development, PSSE, TSAT, and PSCAD model benchmark, and as-built parameter verification (PVR). Mr. Qu is a registered professional engineer in the province of British Columbia.



David Marshall

Transmission Manager, Southern Company

David Marshall is a Transmission Manager at Southern Power Company, working within the Transmission & Markets Group. In his role, David provides essential transmission support to Southern Power's generation assets across the United States. With over 27 years of experience in the Power Industry, his expertise spans transmission planning and operations, market forecasting, and asset management. David holds both a Bachelor of Science and a Master's degree in Electrical Engineering from the University of Tennessee, as well as an MBA from the University of Alabama Birmingham. He is also a licensed Professional Engineer in the state of Alabama.

Moderator(s)



Alex Shattuck
Director of Grid Transformation, ESIG

Alex Shattuck, ESIG's Director of Grid Transformation, has worked across the power industry for more than 10 years, specializing in maintaining bulk power system reliability as inverter-based resource (IBR) penetration increases. Alex has gained experience in many aspects of the North American and International power systems through work in long term planning at the NYISO, performing detailed modeling and study work for developers and generator owners at Electric Power

Engineers, providing IBR plant design and model subject matter expertise for North America while at Vestas, leveraging that expertise to help ensure standards enhancements and best practices are in alignment with industry while at NERC, and continuing to produce work that improves industry best practice to ensure this energy transition occurs reliably through ESIG.

Presenter – Closing Remarks



Latrice Harkness
Director of Engineering

Latrice Harkness joined the North American Electric Reliability Corporation in 2014. Latrice has over 20+ years of experience working in the electric utility industry. She is currently the Director of Engineering and prior to this role worked as Director of Standards Development, Manager of Standards Development, Senior Standards Developer and Engineer of Registration and Certification. Prior to joining NERC, Latrice worked as a Transmission Analyst in Project Management at Georgia Power. She also has experience as a Security Engineer conducting short-term and long-term load flow studies for the bulk power system in Georgia and distribution engineering. Latrice has a Bachelor's degree in Civil Engineering from the Georgia Institute of Technology and a Master of

Science in Management in Leadership and Organizational Effectiveness from Troy State University.