

PAC World Conference 2025

Glasgow, Scotland, UK

List of papers in order of presentation at the conference.

Tuesday Morning *(after keynote speaker)*

- TUM01** How to Obtain Reliable Process Bus Time Synchronization Comply with IEC 61850 - S. Huante, K. Nowacki, Bitstream, Poland
- TUM02** Explainable AI for Sensorless Fault Prediction in Distribution Networks - K. Bäckström, Ebrahim Balouji, Eneryield, Sweden
- TUM03** Showcasing Applications of a Multi-Zone Distance Protection Relay Model Using a Digital Real-Time Simulator - D. Rangana Gurusinghe, J. Wijekoon, RTDS Technologies Inc., Canada.
- TUM04** Enhancing Grid Reliability through AI-Powered Knowledge Sharing - J. C. Sánchez, Florian Fink, OMICRON electronics, Austria
- TUM05** Using a Disturbance Monitoring IED When in Transition to a Fully Digital Protection System - T. Yebra Vega, A. Oliveira, ERLPhase Power Technologies LTD, Canada; A. Gernhard, Duquesne Light Company, USA
- TUM06** Enhancing Power System Reliability with High-Fidelity Digital Twins of Advanced PAC Schemes - O. Bagleybter, GE Vernova, United Kingdom
- TUM07** Testing and Monitoring Techniques for Commissioning Digital Substations - J. Ruiz, J. Verzoza, B. Gwyn, Doble Engineering, USA
- TUM08** High Channel Density Fault Recording with IEC61850 Sampled Values - Challenges and Benefits - A. Madhyastha, AMETEK Power Instruments, India
- TUM09** It's not Just a Game – Cybersecurity at the OVRAM Relay Protection Laboratory - A. Kiss, F. Rákóczi, R. Szedlák, A. Woynárovich, MAVIR, Hungary
- TUM10** Automatic Collection of Disturbance Records Through IEC61850 Using a Virtualised Platform - A. Karl, Swissgrid Ltd, Switzerland; A. de Gottrau, C. Aerschmann, CONDIS Ltd, Switzerland

Tuesday Afternoon

- TUA01** Evolution to Centralized Protection Automation and Control - D. Verhulst, Nokia, Belgium; P. Hemmer, Grid to Great, The Netherlands
- TUA02** The IEC 61850 Engineering Process from an Eagle's View - F. Steinhauser, OMICRON electronics, Austria
- TUA03** Improving ERCOT's System Resiliency to Generation Shortages - M. Carpenter, Oncor Electric Delivery, USA
- TUA04** Automated Engineering And Testing Process For SPACS - E. Otaola, I. Ferrero, Z. Ojinaga, i-DE, Spain
- TUA05** Multi-Zone Differential Protection Applied to Offshore Wind Networks - S. Blair, A. Chandran, O. Oyewole, Synaptec, UK; B. Kasztenny, SEL, Canada; A. Tsylin, Ørsted, Denmark
- TUA06** Concept Design Study: Bridging PACS Blueprints and IEC 61850 Engineering Workflows - G. Lisboa, Belden, Spain

* Paper was not available at time of publishing

- TUA07 Lessons Learned from Testing IEC61850 Systems Using Top-Down Engineering - D. Gasca, OMICRON electronics, Austria; H.-J. Gruber, Tennet, Germany
- TUA08 Leveraging IEC 61850 One Step At A Time: Practical Experience Of Rolling Out Digital Substations - B. Heimisson, Landsnet, Iceland
- TUA09 Challenges Protecting MV Networks with Zig Zag Grounding Transformers - R. Cimadevilla, A. García, ZIV, Spain; J. Á. G. Viosca, C. A. Domínguez, i-DE, Spain
- TUA10 Automatic Fault Analysis & Fault Clearing Assessment for Transmission Line Protection - A. Shinde, A. Slupinski, PSI Neplan AG, Switzerland; Markus Suess, Axpo Grid AG, Switzerland
- TUA11 Edge to Power (E2P): Transforming Energy Systems with Digital Innovation - V. Choinière, S. M. Mohseni-Bonab, Hydro-Québec, Canada
- TUA12 Comparative Analysis of Virtualized, Centralized, and Conventional Protection Relays - T. Nascimento Carreiras, Schneider Electric, Spain

Wednesday Morning

- WEM01 tba
- WEM02 Improved Method to Validate the Secondary Wiring Using Sawtooth-based Polarity Detection with Integrated Phase Identification - J. Schmidbauer, F. Kolb, OMICRON electronics, Austria
- WEM03 Wide-Area Terrestrial Time-Distribution System for Resilient Process Bus-Based Line Current Differential Protection - A. Shrestha, M. Elshafi, A. Shetty, A. Hoorjandi, Schweitzer Engineering Laboratories, Inc., USA
- WEM04 Advanced Testing of Merging Units: Ensuring Reliability and Interoperability in Digital Substations - M. Achterkamp, M. Bivolaru, G. Montagna, KEMA Labs, The Netherlands; M. Heerze, E. Melenhorst, R. Woertman, Grid to Great, The Netherlands
- WEM05 Explainable AI-Driven Detection and Localization of Partial Discharges and Intermittent Faults in IEC 61850/61869 Digital Substations Using QMU 800 and CMPC 800 - E. Balouji, EcoPhi AB, Sweden; M. Khatib, Ithra United, Saudi Arabia and Basaksehir University, Turkey; J. Lindqvist, EcoPhi AB, Sweden
- WEM06 Implementing Protection Control Centre to Enhance the Acceleration of Unmanned Substations - A. Hendryan, I. Firdaus, Muhajir, Amad, I. Lewi Situmorang, R. Dasa Nanda Putra, PT PLN (Persero), Indonesia
- WEM07 Feedback from CIGRE WG B5.69 Related to Deployment of PACS Based on IEC 61850 and Process Bus - R. Loken, Statnett, Norway
- WEM08 Enabling Full Integration of Ethernet Networks into IEC 61850 Systems: The First Steps Towards a Unified PACS Framework - G. Lisboa, Belden, Brazil
- WEM09 From Terminal to Control Center: Automated Signal Testing for Reduced Verification Time - O. Durak, B. Tahincioglu, OMICRON electronics GmbH, Austria
- WEM10 Negative Sequence Current Injection of IBRs - R. Cimadevilla, A. Castañón, ZIV, Spain; P. Eguia, E. Torres, A. Blázquez, UPV, Spain
- WEM11 Wide Area Controls in Iceland - B. Heimisson, Landsnet, Iceland

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- WEM12** Operational Experience of a Major Blackout in Southern Regional Grid of India: Understanding Methodologies and Mitigating Techniques for Under-Frequency Relay Maloperation - N. J. Chitimireddy, V. Ballikonda, A. S. Ronés V, M. Kumar T, Ramesh M K, B. Velury, Grid Controller of India Ltd, India

Wednesday Afternoon

- WEA01** Lessons Learned from a Slow Breaker Failure Operation in a POTT Scheme - M. Quinteros, M. Allen, Entergy Services, USA; J. Ruiz, Doble Engineering, USA
- WEA02** Experience Feedback from the Development of Interoperable IEDs for R#SPACE - V. Leitloff, M. Bedourian, C. Ghafari, S. Bongain, A. Azevedo, RTE, France; J. Peres, EFACEC, Portugal; J. Maincent, SCLE, France; P. Montaner, GE, France
- WEA03** IEC61850 Interop Time Synchronization Testing Takeaways and Conclusions - G. Wrosinghert, W. Abt, Meinberg USA, USA
- WEA04** The Protective System Coordination for a Hospital Medium-Voltage Electrical Distribution Grid with Dynamic Uninterruptible Power Supply - M. Ambroggi, THYTRONIC S.p.A., Italy
- WEA05** Software Defined Protection and Control - B. Lakshmikanthan, Schneider Electric, Singapore; T. Carreiras, Schneider Electric, Spain
- WEA06** System and Maintenance of the Bekasi Digital Substation: An Overview of Indonesia's Largest Digital Substation - I. Firdaus, M. Muflih Nurfaizi, PT.PLN (Persero), Indonesia; B. Tahincioglu, OMICRON electronics GmbH, Austria; V. Lumban Tobing, A. Yoan Perwita, M. Azhar, PT.PLN (Persero), Indonesia
- WEA07** Communication Between Substations in Noise Conditions of GOOSE, R-GOOSE and Proprietary Messages - D. Gil Donate, Marco Senesi Ranaldi, ZIV, Spain
- WEA08** FLISR and IEC 61850 GOOSE Communications Over an LTE/5G Network Using QoS and IP/MPLS: Meeting Latency Requirements for Protection in the Electrical Distribution Grid - M. Subieta, Nokia, USA
- WEA09** A Unified Virtualized Platform for AI-Driven Centralized Monitoring and Fault Prediction using CMPC - E. Balouji, K. Bäckström, Ecophi, Eneryield, Sweden
- WEA10** Trust is Good, Causation is Better: Utilizing Explainable and Causal Artificial Intelligence in Time Series-Based Applications - R. Mubarak-Aberer, OMICRON electronics GmbH, Austria; B. Taetz, International University of Applied Sciences, Germany
- WEA11** Primavera do Leste II: Challenges, Innovations, and Benefits of Digitalization in Power Distribution Substations - J. L. Gambini Damasceno, D. Macek Ferreira, Siemens Brazil; J. F. Sanchez Hernandez, Siemens, Germany; C. E. Fernandes, G. de Mattos Golineli Marini, R. A. Caero Marquez, A. Oliveira Fernandes, L. José de Medeiros, Energisa, Brazil
- WEA12** The Role of IEC 61850 in the Digital Transformation of Electric Power Grids - A. Apostolov, PAC World, USA

Thursday Morning

- THM01** Reconstruction of a Cross-Country Fault in a Compensated Power System - F. Fischer, OMICRON electronics Deutschland GmbH, Germany; K. Mołczan, M. Wiecha, OMICRON electronics GmbH, Austria
- THM02** Validation of an Adaptive Protection Scheme in a Microgrid System with Hardware in the Loop - J. Gers, L. Palacios, GERS USA, USA
- THM03** The Dutch Realtime Interface: An IEC 61850 reference implementation for DER control - R. Troost, Stedin, The Netherlands

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- THM04 Saturation Analysis of Current Transformers- Impact of CT Class and Cable Selection - I. Lewi, Muhajir, Amad, M. Azhar, A. Hendryan, I. Firdaus, PT. PLN (Persero), Indonesia
- THM05 Intrusion Detection in Energy Systems: Insights from Substation Attack Simulations and Incident Response - V. N. Prebensen Norman, G. Nett, Norway; A. Klien, O. Dayanc, OMICRON electronics, Austria
- THM06 Digitalization of Substation and AI Fault Prediction - E. Balouji, Eneryield, Sweden

Backup

- Backup01 Study for How to Build a Centralized Virtual Platform of Protection System by Means of Importing Another System's Databases - H. Matsumoto, Mitsubishi Electric Corporation, Japan

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