



# LIST OF ACCEPTED PAPERS

dated: 1 April 2026

## 2026 WORKSHOP

10TH EDITION

Implementing Successful Innovation in Distribution Networks

# Theme 1 – New Methods for Planning Reliable, Resilient and Sustainable Networks

- 1101**     *Reliability Modeling of Multi-state Power systems Integrating Decentralized Renewable Energy Sources*  
**Dieudonné ECIKE EWANGA\***  
University of Liège, Belgium
- 1102**     *Locating Failures in the Dutch Electrical Distribution Network Using Heuristic Power Profile Analysis*  
**Morteza AGHAHADI\* (1), Niek BREKELMANS (2), Yifan ZHANG (2), Phuong NGUYEN (2), Alessandro BOSISIO (3), Anne VAN DER MOLEN (2), Peter VAN DER WIELEN (2)**  
1: Politecnico di Milano, Italy; 2: Eindhoven University of Technology, Netherlands; 3: University of Pavia, Italy
- 1105**     *Framework for Granting Firm and Flexible Capacity in Low-Voltage Distribution Networks*  
**Mohammed MAHAIRI (2), Bassam MOHAMED (1), Xavier DOMINGUEZ (1), Victor CARMONA (1), Pablo ARBOLEYA\* (2)**  
1: Plexigrid; 2: Universidad de Oviedo
- 1106**     *Clustering Approach for Reducing Computational Burden in MV Hosting Capacity Calculations*  
**Mohammed MAHAIRI (1), Bassam MOHAMED (2), Xavier DOMINGUEZ (2), Pablo ARBOLEYA\* (1)**  
1: Universidad de Oviedo; 2: Plexigrid
- 1107**     *Scalability Strategies for Deploying Digital Twins in Massive Electric Distribution Networks*  
**Tarikua TAYE (1), Bassam MOHAMED (2), Xavier DOMINGUEZ (2), Mesfin FANUEL (1), Pablo ARBOLEYA\* (1)**  
1: Universidad de Oviedo; 2: Plexigrid

- 1108** *Unravelling the Key Challenge for Rapid Deployment of Digital Twins in Distribution Networks: Automatic Fixing of GIS-Based Data for Electrical Connectivity Modelling*  
**Tarikua TAYE (1), Bassam MOHAMED (2), Xavier DOMINGUEZ (2), Mesfin FANUEL (1), Pablo ARBOLEYA\* (1)**  
 1: Universidad de Oviedo; 2: Plexigrid
- 1110** *Derivation and Application of Simultaneity Factors between Load Groups for Low-Voltage Network Planning*  
**Felix TALMOND\* (1), Tobias RIEDLINGER (2), Michael BECKER (1), Markus ZDRALLEK (1)**  
 1: University of Wuppertal, Germany; 2: BMU Energie Consulting GmbH
- 1111** *Automation of Electrical Grid Asset Work Studies*  
**Simon LEVAUFRE\*, Benjamin LECORDIX, Gabriel RUIZ**  
 Enedis, France
- 1114** *Voltage Regulation And Reliability Improvement In Distribution Networks Using Battery Energy Storage Systems*  
**Felipe SILVA\* (1,2), Rafael BARROS (1), George LIRA (2)**  
 1: IFPE, Brazil; 2: UFCG, BRAZIL
- 1118** *An Exploratory Data-Driven Framework for Early Risk Pattern Analysis in Electrical Networks Using Multi-Utility Permit Records*  
**Abdulrahman AL BALAWI\*, Haifa ALDOSARI**  
 Riyadh Infrastructure Projects Center (RIPC), Saudi Arabia
- 1125** *Data-Driven Predictive Maintenance Of Secondary Substations Through Unsupervised Learning: Insights From A Real-World Case Study*  
**Cesare DEL PRETE\* (1,2), Alessandro BOSISIO (2), Rouzbeh SHIRVANI (2), Edoardo BIGLIANI (1), Bartolomeo GRECO (1)**  
 1: A2A, Italy; 2: University of Pavia, Italy
- 1129** *Enhancing Dynamic Operating Envelopes Computation through Improved Residential Load Forecasting and Physics-based Metrics*  
**Cyril RASIC\* (1), Wilhiam DE CARVALHO (2), Jean-François TOUBEAU (1), François VALLÉE (1), Florin CAPITANESCU (2)**  
 1: UMONS, Belgium; 2: LIST, Luxembourg
- 1135** *Transparent Decision-Support for Integrating Non-Wire Alternatives in Distribution Planning*  
**Yassine ABDELOUADOUD, Yoann CHICHE\*, Robin GIRARD**  
 Mines Paris – PSL, France

- 1138** *Planning LV Networks for Effective Voltage Control Under Partial Deployment of PQ-Controlled PV Inverters*  
**Quentin ANTOINE\* (1), Loïc MAUDOUX (1), Kristof VLIEGEN (2), Peter KELLENS (2), Hugues HALLUIN (3), Thomas BERTRAND (4), Simon GÉRARD (5)**  
 1: ENGIE Laborelec, Belgium; 2: Fluvius SO, Belgium; 3: Ores SO, Belgium; 4: Sibelga SO, Belgium; 5: Resa SO, Belgium
- 1139** *Optimizing Droop Control Parameters for Reliable LV Network Operation with PQ-Controlled PV Inverters*  
**Quentin ANTOINE (1), Loïc MAUDOUX\* (1), Kristof VLIEGEN (2), Peter KELLENS (2), Hugues HALLUIN (3), Thomas BERTRAND (4), Simon GÉRARD (5)**  
 1: ENGIE Laborelec, Belgium; 2: Fluvius SO, Belgium; 3: Ores SO, Belgium; 4: Sibelga SO, Belgium; 5: Resa SO, Belgium
- 1140** *Toward Dynamic Proactive Resilience (DPR) Interdependent Critical Infrastructures: An IEC 61850 and Digital Twin Simulation Approach*  
**Mike MEKKANEN\*, Tero VARTIAINEN**  
 University of Vaasa, Finland
- 1150** *Value And Pricing Of Flexibility In Distribution Network Operation*  
**Jere MYLLYKANGAS (1), Osmo SIIRTO\* (1), Pirjo HEINE (1), Dan TELÉN (1), Pertti JÄRVENTAUSTA (2), Sami REPO (2)**  
 1: Helen Electricity Network Ltd., Finland; 2: Tampere University, Finland
- 1152** *Integrating Risk-Aversion Into Distribution Network Planning: A Review Of Recent Methods And Practices*  
**Thomas DEBARRE\* (1,2), Bushra CANAAN (2), Anastasia POPIOLEK (1), Djaffar OULD-ABDESLAM (2), Agustín CORTÉS HÄHNLE (3,4)**  
 1: EDF, France; 2: IRIMAS, University of Haute Alsace, France; 3: European Institute for Energy Research (EIFER), Germany; 4: German Aerospace Center (DLR) Institute of Networked Energy Systems, Germany
- 1154** *Multi-Period Planning and Analysis Framework for Multi-Energy Systems*  
**Alex FELICE\*, Stijn COUSIN, Thierry COOSEMANS**  
 Vrije Universiteit Brussel (VUB), Belgium
- 1155** *Impacts of Solar Photovoltaic Deployment and Electric Vehicle Adoption on Future Load Growth in the Oman Distribution Network: A Long-Term Forecasting Assessment*  
**Badar AL WASHAHI\* (1), Aisha AL MUQARSHI (1), Murid HUSSAIN (2), Zainab AL LWATIA (1), Usama AL SAADI (1)**  
 1: Nama Electricity Distribution Company, Oman; 2: Muscat University

- 1165** *E-REDES CombiFlex – Innovative Planning Approach To Boost Flexibility And Accelerate Connections While Minimising Transmission Impact.*  
**Sara CARVALHO\***, **Rúben NUNES**, **Inês ROÇA**, **João MILHEIRO**, **João ANTUNES**, **Rui BENTO**  
E-REDES, Portugal
- 1168** *UDEX Digital Twin Development: Towards Advanced Smart Grid Validation*  
**Nabil AKROUD\***, **Iñaki ORUE**, **Irantzu ARANA**, **Mikel SANTIAGO**  
Ormazabal Corporate Technology, Spain
- 1169** *Resilire: A Framework for Resilience Modelling in Electricity Networks*  
**Daniel WILSON\* (1)**, **Lewis WRIGHT (1)**, **Gwen PALMER (2)**, **Andy MOORE (2)**  
1: SP Electricity North West, United Kingdom; 2: Frazer-Nash Consultancy Ltd, United Kingdom
- 1174** *Modular, Open and Cyber-Resilient LV Automation Architecture for Next-Generation Distribution Networks*  
**Imanol LÓPEZ GOITI\* (1)**, **Jonathan GONZÁLEZ RÍOS (1)**, **Antonio CARRASCOSA BELMEZ (1)**, **Esther PLASENCIA ALONSO (2)**  
1: Merytronic, Spain; 2: Pronutec, Spain
- 1177** *Importance of Aggregated DER Metadata in Low Voltage Distribution Networks*  
**Alexandre M. V. GOUVEIA\* (1,2,3)**, **Md Umar HASHMI (1,2)**, **Reinhilde D'HULST (2,3,4)**, **Dirk VAN HERTEM (1,2)**  
1: KU Leuven, Leuven, Belgium; 2: EnergyVille, Genk, Belgium; 3: VITO, Mol, Belgium; 4: Orion Grid Technologies, Genk, Belgium
- 1178** *Co-optimising Grid Reinvestments And Reinforcement To Support Distribution Grid Planning*  
**Caroline Hørby THELLEFSEN (1)**, **Sara Lea Dyrbøl JENSEN (1)**, **Nicolai HANDRECK (2)**, **Mikhail SKALYGA (2)**, **Louise C. JENSEN (3)**, **Tilman WECKESSER\* (1)**  
1: DTU Wind and Energy Systems, Denmark; 2: Utiligize ApS; 3: TREFOR EI-net
- 1181** *Getting the Timing Right: Integrating Occupancy Detection in EV Hosting Capacity Studies*  
**Robbert CLAEYS\* (1)**, **Rémy CLEENWERCK (1,2)**, **Kamran JALILPOOR (1)**, **Jan DESMET (1)**  
1: Ghent University, Belgium; 2: Vrije Universiteit Brussel, Belgium

- 1196** *Data-Based Grid Expansion By Means Of Quantitative Validation Enabling Informed Decisions*  
**Christoph ENGELS (1), Sebastian KUHN (2), Dominique GIAVARRA (2), Tim SCHWARZ (2), Emanuel MAMEGHANI (2), Daniel AZBEL\* (3), Andreas MAIER (3)**  
 1: University of Applied Sciences and Arts, Germany; 2: Westnetz GmbH, Germany; 3: enervance solutions GmbH, Germany
- 1197** *Impact of OPF Modelling Assumptions on Bilevel Network Interdiction in Distribution Grids*  
**Eric TÖNGES\* (1), Martin BRAUN (1,2), Philipp HÄRTEL (1,2)**  
 1: University of Kassel, Germany; 2: Fraunhofer Institute for Energy Economics and Energy System Technology IEE
- 1208** *Enhancing Load Profile Modeling through Coupling of Smart Meter and Public Register data – A Danish Case Study*  
**Daniel B V NIELSEN\*, Konrad SUNDSGAARD, Line Harfeld MUURHOLM**  
 Green Power Denmark, Denmark
- 1209** *Development of a Standardised Data Model for the Digitalisation of Bay Control Units*  
**Michel MÜLLERS\* (1,2), Rajkumar PALANIAPPAN (2)**  
 1: TU Dortmund; 2: Hard- & Software Technologie GmbH & Co KG, Germany
- 1210** *Economic Assessment of Heat-Related Asset Risks in Electrical Distribution Networks under Future Climate Conditions*  
**Nadine LIENENKLAUS\* (1), Florian HANKAMMER (1), Frank ASCHENBROICH (2), Sarah ELSNER (3), Verena RUEDL (4), Markus ZDRALLEK (1)**  
 1: Bergische Universität Wuppertal, Germany; 2: EWR GmbH, Germany; 3: Westnetz GmbH, Germany; 4: UBIMET GmbH, Austria
- 1211** *Economic Assessment of Preventive Measures for Electrical Distribution Systems under Heavy Rainfall Events Using HILP Analysis*  
**Florian HANKAMMER\* (1), Nadine LIENENKLAUS (1), Frank ASCHENBROICH (2), Sarah ELSNER (3), Verena RUEDL (4), Markus ZDRALLEK (1)**  
 1: Bergische Universität Wuppertal, Germany; 2: EWR GmbH, Germany; 3: Westnetz GmbH, Germany; 4: UBIMET GmbH, Austria
- 1214** *Renewable Generation Integration in Low Voltage Grids: Exploring Innovative Components for Voltage Management in Distribution Networks*  
**Javier LEIVA\* (1), Lourdes GARCÍA DUARTE (1), Massimo BARTOLUCCI (2), Jose F. SANZ-OSORIO (3), María Paz COMECH (3), Julio J. MELERO (3)**  
 1: Enel Grids, Spain; 2: Enel Grids, Italy; 3: Instituto de Investigación Mixto de la Energía y la Eficiencia de los Recursos de Aragón, ENERGAIA, Universidad de Zaragoza-Fundación CIRCE, Spain

- 1220** *A Novel Planning Approach to Enhance Hosting Capacity in Low-Voltage Distribution Networks via Flexible Branch Coupling and DC Grid Storage*  
**Benjamin WÖRNER\* (1), Ramzi DIB (1), Dirk WESTERMANN (2)**  
 1: Department IEM THM University of Applied Sciences, Germany; 2: Power Systems Group Technische Universität Ilmenau, Germany
- 1222** *A Flexible Framework for Evaluating Virtual Dynamics and Control Strategies to Enhance Hosting Capacity in Modern Distribution Networks*  
**Habib Ur Rahman HABIB\***  
 INESC TEC, Portugal
- 1223** *Beyond Reliability: A Holistic Approach to Planning Resilient and Sustainable Electrical Services*  
**Kamila WIATR\*, Bahaa MOHAMED**  
 Foster + Partners, United Kingdom
- 1228** *A Framework for Analysing the Long-term Impact of Battery Energy Storage Systems in Distribution Systems*  
**Elise VAN WIJNGAARDEN\*, Elke KLAASSEN, Bart VAN DER HOLST**  
 Enexis B.V.
- 1240** *Scalable Sample-Based Clustering for Smart Meter Load Profiles*  
**Chloe GREER\*, Xueqin {Amy} LIU, Robert BEST**  
 Queen's University Belfast, United Kingdom
- 1243** *Process Innovation in Secondary Substation Design at Enexis*  
**Bas MOOIJMAN (1), Dave ADRIAANSSEN\* (2)**  
 1: Eplan BV, The Netherlands; 2: Enexis Netbeheer, The Netherlands
- 1245** *DER Enablement: Long Term Voltage Forecasting For Distribution Networks With High DER Penetration*  
**Youssef MIFTAH, Keven REN, Olivier LACROIX\*, Daniel GUPPY**  
 VISION, Australia
- 1246** *Uncertainty And Risk-Based Approach For Network Planning*  
**Jason CHEN (1), Constanza IRIBARREN (1), Pierre LELONG\* (2), Daniel GUPPY (1)**  
 1: VISION, Australia; 2: VISION, France
- 1247** *Artificial Intelligence Used In Probabilistic Time-Series Forecasting For Network Planning*  
**Renaud LAINE\*, Olivier LACROIX, Daniel GUPPY**  
 VISION, Australia

- 1248** *Study on Hosting Capacity Derivation Considering Three-Phase Voltage Unbalance in Distribution Network using Geospatial Future Load Forecast*  
**Kazutaka YAMAMOTO\* (1), Shimpei OE (1), Suguru IZUTANI (1), Takaya ANEGAWA (1), Hiroki ICHINOMIYA (2), Hiromu HANAKAGO (2)**  
 1: Kansai Transmission and Distribution, Inc., Japan; 2: Mitsubishi Research Institute, Inc.
- 1250** *Bottom-up Greenfield Planning Approach For Comparing Centralized And Decentralized Heating Supply Concepts Across Optimization Levels*  
**Wiebke GERTH\* (1), Eric SCHULZE BERGE (1), Marius GÜTHS (2), Markus ZDRALLEK (1)**  
 1: University of Wuppertal; 2: Stadtwerke Bielefeld GmbH
- 1251** *Planning Principles And Spatial Determinants For Automated Low-Voltage Network Planning Within Greenfield Framework*  
**Eric SCHULZE BERGE\* (1), Wiebke GERTH (1), Marius GÜTHS (2), Markus ZDRALLEK (1)**  
 1: University of Wuppertal, Germany; 2: Stadtwerke Bielefeld GmbH
- 1258** *Adaptive Flow-Coherent Clustering for Cyber-Informed Distributed Bilevel State Estimation Correcting Measurement-Model Attacks*  
**Michel CARABALLO\*, Nnamdi EJIOFOR, Arturo S. BRETAS**  
 Université Grenoble Alpes, France
- 1277** *Wind Farm Network Optimisation With PYORPS*  
**Martin HOFMANN\* (1,2), Thomas STETZ (1), Frank KAMMER (1), Sami REPO (2)**  
 1: THM - University of Applied Sciences, Germany; 2: Tampere University, Finland
- 1278** *Embedding Resilience in Distribution Network through Communal Fuel Cell Integration*  
**Anosha IRSHAD\* (1), Kate THOMPSON (1), Chris WARWICK (2), Daniel HOARE (3), Waqas JAVED (1)**  
 1: EA Technology, United Kingdom; 2: LCP Delta; 3: Northern Powergrid
- 1280** *Innovations in Inverter-based Microgrids*  
**Jeremy HARRISON\*, Chris WARWICK**  
 LCP Delta, United Kingdom
- 1281** *Integration of Flexibility from Electric Vehicles in Distribution System Planning to Mitigate Grid Reinforcement*  
**Corentin JACQUIER\* (1,2), Marie-Cécile ALVAREZ-HERAULT (1), Rémy RIGO-MARIANI (1), Georges KARINIOTAKIS (2)**  
 1: Univ. Grenoble Alpes, CNRS, Grenoble INP, G2Elab, 38000 Grenoble; 2: Mines Paris, PSL University, Centre for processes, renewable energy and energy systems (PERSEE), 06904 Sophia Antipolis

- 1283** *Modeling and Simulation of Local Flexibility Trading to Prevent Congestion in Distribution Networks*  
**Sara SCHÖN\***, **Kim JOST**, **Saif ALI**, **Thomas BLEISTEIN**  
 August-Wilhelm Scheer Institut für digitale Produkte und Prozesse gGmbH, Germany
- 1286** *Probabilistic Modelling of Residential Customer Power Based on Smart Meter Data*  
**Peter WOHLFART\* (1)**, **Christian KRESNIK (2)**, **Martina SCHELANDER (2)**, **Stephan BRANDL (2)**, **Herwig RENNER (1)**  
 1: Institute of Electrical Power Systems, Graz University of Technology, Austria; 2: KNG-Kärnten Netz GmbH, Austria
- 1292** *Enhancing 110-kV Grid Planning Through Real-Measurement-Based Time-Series Generation*  
**Antoni CHAJAN\* (1)**, **Paul KROEMER (1)**, **Daniel SCHACHT (1)**, **Hauke JÜRGENSEN (2)**, **Alexander KROGGEL (2)**, **Matthias RUDOLPH (2)**  
 1: FGH GmbH, Germany; 2: Schleswig-Holstein Netz GmbH, Germany
- 1293** *A Data-Driven Approach to Predicting the Load Curve of Multi-Unit Buildings with Electric-Vehicle Parking*  
**Amar MEDJBER**, **Sacha DUZELIER\***  
 Enedis, France
- 1295** *Hosting Capacity of a Distribution Network for Fluctuating PV, Wind and BESS: One Additional Aspect to Consider in Network Planning*  
**Frederik GROEMAN\* (1)**, **Maarten BERENDE (2)**, **Alwin JONKER (2)**, **Emilija LAZDANAITE (1)**, **Wim KUIJPERS (1)**  
 1: DNV Netherlands B.V., The Netherlands; 2: Enexis Netbeheer B.V., The Netherlands
- 1298** *Enabling Risk-Aware And Flexible Grid Planning: A Collaborative Approach To Modern DSO Challenges*  
**Jaap SCHOUTEN\* (1)**, **Peter SALEMINK (1)**, **Yu XIANG (1,2)**  
 1: Alliander, The Netherlands; 2: Eindhoven University of Technology, The Netherlands
- 1303** *Unlocking Hosting Capacity Through Dynamic Cable Rating: A Data Center Case Study*  
**Mohamed NUMAIR\* (1,2)**, **Ahmed M. ELKHOLY (3,4)**, **Amauri G. MARTINS-BRITTO (1,2)**, **Marta VANIN (1,2)**, **Dirk VAN HERTEM (1,2)**  
 1: Department of Electrical Engineering (ESAT), Research Group ELECTA, KU Leuven, 3001 Heverlee, Belgium.; 2: EnergyVille, Thor Park 8310, 3600 Genk, Belgium.; 3: Electrical Power and Machines Engineering Department, Tanta University, Tanta, Gharbia, Egy
- 1313** *Strategic Investment Planning for Dutch DSO Addressing Energy Losses*  
**Emile VAN DER KUYP\***, **Cihan GERCEK**  
 Alliander, The Netherlands

- 1314** *Lv Grid Automation For Secondary Substation Through Edge Computing And Circuit Breakers*  
**Angel SILOS\***, **Jacqui MILLS**, **Cyril DOMENECH**, **Francisco RAMOS**  
 Schneider Electric
- 1317** *Emergency Management Plan for the Distribution Network: an innovative approach*  
**Roberto ZAPPELLONI (1)**, **Mariano GAUDÒ (2)**, **Leonardo RAGNI (3)**, **Andrea PEGOIANI (4)**, **Dan GELEGRAM (5)**, **Laura PANELLA\* (6)**  
 1: enel GRIDS srl, Italy; 2: UFG Grupo Naturgy; Spain; 3: Areti, Italy; 4: A2A, Italy; 5: Retele Electrice, Romania; 6: enel GRIDS srl, Italy
- 1323** *Advancing the Common Network Asset Indices Methodology: New Models, Extensions and Adaptability in CNAIM v3*  
**Joanne PEACOCK\* (1)**, **Landel JOHNSTON (2)**, **Gavin HOWARTH (3)**, **Dawn O'BRIEN (4)**  
 1: EA Technology, United Kingdom; 2: Scottish & Southern Electricity Networks, United Kingdom; 3: Northern Powergrid, United Kingdom; 4: EA Technology, United Kingdom
- 1334** *Improving Low-Voltage Network Planning Through Smart Meter-Based Customer Profiling*  
**David ECHTERNACHT\* (1)**, **Eileen TRUNCZIK (2)**, **Dominik KOSTON (3)**, **Florian HINTZ (4)**, **Esko NOCKMANN (5)**, **Sebastian NEFF (6)**, **Christoph JÄTZ (7)**, **Christian KRAEMER (8)**  
 1: University of Applied Sciences Düsseldorf, Germany; 2: E.DIS Netz GmbH; 3: envelio GmbH; 4: Avacon Netz GmbH; 5: Westnetz GmbH; 6: Bayernwerk Netz GmbH; 7: Avacon Netz GmbH; 8: energyandpeople GmbH
- 1335** *Techno-economic Optimization Algorithm For Selecting Between Voltage Regulator And Lv Network Cabling – Croatian Approach*  
**Deni ĆETKOVIĆ\***  
 HEP-ODS d.o.o., Elektroprimorje Rijeka, Croatia
- 1339** *Hydro Ottawa Reduces Tree-Related Outages Leveraging AI-Driven Vegetation Intelligence*  
**Lynn PETESCH\***  
 Overstory, The Netherlands
- 1345** *Comparative Harmonic Behaviour of Distributed Solar PV in Industrial vs. Mixed-Use Urban Grids: A 33 kV Planning Perspective– Case Study of Nama Electricity Distribution Company, Oman*  
**Aisha AL MUQRASHI\***, **Marwan AL HASANI**  
 Nama Electricity Distribution Company, Oman

- 1346** *Planning Decarbonized MV Networks: Traditional Solutions Vs Energy Storage*  
**Carlos GARCÍA-SANTACRUZ (1), Alejandro MARANO-MARCOLINI\* (2)**  
 1: Ingelectus / Universidad de Sevilla, Spain; 2: Universidad de Sevilla
- 1347** *Resilient Planning and Techno-Economic Optimization of a Renewable-Based Microgrid for Rural Electrification in Oman*  
**Alla ALMAMARI\* (1), Nasser ALABRI (1), Razzaqul AHSHAN (2), Ayman ABDEL-KHALIK (2)**  
 1: Nama Electricity Distribution Company, Oman; 2: Sultan Qaboos University, Oman
- 1355** *A Deep Learning Approach to Advanced PV Power Forecasting Utilizing SCINet-GAN*  
**Minjeong KIM\*, Yongju SON, Sungyun CHOI**  
 Korea University, Republic of South Korea
- 1360** *Assessing the Operational Performance of MV Voltage Regulators under Realistic Grid Conditions*  
**Nikola STANKOVIC\* (1), Djamel HADBI (1), Philippe BERTAZZON (1), Frédéric REYMOND-LARUINA (1), Mathieu FERRARIS (2)**  
 1: EDF, France; 2: Enedis, France
- 1361** *Enhancing Distribution System Resilience through Energy Communities*  
**Montserrat MONTALÀ-PALAU\* (1), Jeroen MARKUS (2), Milad KAZEMI (2), Marc CHEAH MAÑÉ (1), Christina PAPADIMITRIOU (2), Oriol GOMIS-BELLMUNT (1)**  
 1: CITCEA - Universitat Politècnica de Catalunya, Spain; 2: ESS - Eindhoven University of Technology, Netherlands
- 1364** *Transition from 33 kV to 66 kV Distribution to Resolve Long-Distance Voltage Drop in Wadi Al Tayeen, Oman*  
**Humaid AL SHUKAILI\*, Marwan AL HASANI**  
 Nama Electricity Distribution, Oman
- 1367** *Quantum Resource Estimation for Minimising Energy Grid Losses*  
**Camille DE VALK\* (1,2,3), Milou VAN NEDERVEEN (1), Koen REERINK (2), Werner VAN WESTERING (1)**  
 1: Alliander, Arnhem, the Netherlands; 2: Capgemini's Quantum Lab, Utrecht, the Netherlands; 3: Applied Quantum Algorithms, Leiden University, Leiden, the Netherlands
- 1373** *Evaluation of Sampling-Based Power Flow Simulations for Low-Voltage Grids*  
**Manav SHARMA\* (1), Marc DÜNSER (2), David FELLNER (1), Mark STEFAN (2)**  
 1: University of Applied Sciences, Austria; 2: AIT Austrian Institute of Technology GmbH, Austria

- 1380** *Topology Identification of Unbalanced Distribution Networks Using Voltage Magnitude Data*  
**Hélène PONSARTS\* (1,2,3), Reinhilde D'HULST (4), Marta VANIN (1,3), Dirk VAN HERTEM (1,3)**  
 1: KU Leuven; 2: VITO; 3: EnergyVille; 4: Orion Grid Technologies
- 1383** *Beyond Predictive Accuracy: An Application Analysis of Time Series Foundation Models in Grid Edge Energy Management*  
**Andreas BINDER\* (1,2), Sebastian SCHRECK (2), Sebastian THIEM (2), Ulrich LUDOLFINGER (3), Stefan NIESSEN (1,2)**  
 1: TU Darmstadt; 2: Siemens AG, Germany; 3: University of Applied Sciences Landshut
- 1385** *Research on Multi Objective Optimization Planning Method for Distribution Power System Considering Probability Risk*  
**Hui HUI\*, Xiaoli MENG, Ying LIANG, Bo ZHANG, Wei LIU**  
 China Electric Power Research Institute
- 1390** *Comparing the Extreme Weather Event Definitions Used to Quantify Power System Resilience*  
**Daniel L. DONALDSON\* (1), Arslan AHMAD (2), Ian DOBSON (2)**  
 1: University of Birmingham, United Kingdom; 2: Iowa State University, United States of America
- 1393** *Single-relay Self-healing for Open Ring Topology Distribution Systems*  
**Isabele SIMON\*, Luzia LOPES, Carlos BELTRAME, André MELO**  
 Schneider Electric
- 1399** *Customized Distributed Generation Forecasting for Distribution Planning: A Caribbean Case Study*  
**Fabio RIVA\* (1), Silvia CORIGLIANO (1), Luciano MASOTTI (1,2), Kian Daniel GROSSARD-AMIN (1,3), Michele PASTORE (1,2)**  
 1: CESI S.p.A., Italy; 2: EnerNex LLC, USA; 3: KTH Royal Institute of Technology, Sweden
- 1401** *State and Parameter Estimation in Three-Phase Australian Distribution Networks Using a Physics-Informed GNN Approach*  
**Muhammad Furqan AZAM\* (1,3), Ghulam MOHY UD DIN (2), Chris HERMANS (3), Julio BRASLAVSKY (2), Geert DECONINCK (1)**  
 1: KU Leuven, Belgium; 2: CSIRO, Australia; 3: VITO, Belgium
- 1403** *Ensemble Learning with Multi-Algorithm Integration for Net Load Forecasting in Steel Enterprises: A Case Study from Northern Hebei, China*  
**Feixiang GONG\*, Yayun QU, Yisi AI, Ziqian ZHANG, Fanpeng BU, Dezhi LI**  
 China Electric Power Research Institute, China

- 1405** *Quantifying Load Uncertainty from Smart Meter Data for Risk-Based Low Voltage Grid Design*  
**Pierre CAUCHOIS\***, **Mathieu BORDIGONI**, **Grégoire COLIN**, **Gourguechon BRUNO**  
 Enedis, France
- 1413** *Optimising Energy Communities for Distribution Grid Resilience: A Real-World Study with Electric Vehicles and Storage in Rural Ireland*  
**Mário COUTO\* (1)**, **Dimitris AUGOLOUPIS (2)**, **Vasilis MICHALAKOPOULOS (2)**, **Peter RICHARDSON (1)**, **Mariana JIMENEZ (1)**, **Alessio COCCIA (1)**  
 1: EPRI Europe, Ireland; 2: EPU, NTUA
- 1415** *Optimization-Based Partitioning of High Voltage Grids*  
**Simon BRAUN\* (1)**, **Johannes WIDMANN (2)**, **Laurids KOCH (2)**, **Andreas ULBIG (1,3)**  
 1: IAEW at RWTH Aachen University, Germany; 2: RWTH Aachen University, Germany; 3: Fraunhofer FIT, Aachen, Germany
- 1416** *Large-Scale Cost-Benefit Analysis of Photovoltaic Flexibility in Distribution Grids: A Methodology based on Representative Feeders*  
**Seddik Yassine ABDELOUADOUD\***, **Robin GIRARD**  
 Mines Paris PSL, France
- 1417** *Prosumer Synchronisation Risk: Impacts of Time-Varying Tariffs on Distribution Network Expansion*  
**Dillon ZADOKS (1)**, **Alfredo ONETO\* (2)**, **Carlo TAJOLI (1)**, **Yi GUO (3,4)**, **Philipp HEER (3)**, **Giovanni SANSAVINI (2)**, **Gabriela HUG (1)**  
 1: Power Systems Laboratory, Institute for Power Systems & High Voltage Technology, Department of Information Technology and Electrical Engineering, ETH Zurich, Zurich, Switzerland.; 2: Reliability and Risk Engineering Laboratory, Institute of Energy and
- 1428** *Fuel Cell Integration and Intelligent Power Management for Flexible and Resilient Distribution Networks*  
**Arwin RIYAHY\***, **Ringo LEE**  
 Foster and Partners, London, United Kingdom
- 1431** *Climate Impact and Adaptation Effectiveness Assessment for Enel's Power Grids in Rio de Janeiro, São Paulo and Bogotá Under Climate Change Scenarios.*  
**Laura Alejandra SÁNCHEZ GUARNIZO (1)**, **Marc BEEG (1)**, **Thomas REMKE (1)**, **Francesco IOVINO\* (2)**, **Valerio VALLOCCHIA (3)**, **Gonzalo Arturo GOMEZ AREVALO (2)**, **Anna Lisa FRAU (2)**  
 1: Repath GmbH; 2: Enel Grids srl; 3: Enel Global Trading Spa

- 1434** *A Multi-Energy Planning Methodology for Reliable and Sustainable Off-Grid Distribution Systems: Case Studies in Four Regions*  
**Venkata Siva Sathya Sairam JAGU\***, Lies DEBRUYNE, Michael KLEEMANN  
 KU Leuven, Belgium
- 1437** *The Role Of Digital Twins In Enabling New Grid Connections. A Swedish DSO Case Study*  
**Leo VILLALBA (1), Tarikua TAYE (1), Sarah SAEED (4), Anders NILSON (2), Bassam MOHAMED (2), Vicente COSTA (2), Xavier DOMINGUEZ (2), Hozar AHMED (3), Pablo ARBOLEYA\* (1)**  
 1: Universidad de Oviedo / Plexigrid, Spain; 2: Plexigrid; 3: Nordion Energi; 4: Universidad de Oviedo
- 1438** *Role of Distribution HV Network Up-voltaging to Meet Changing Customer Requirements in the LCT Energy Transition.*  
**Kieran LYNCH\***, James BRENNAN  
 ESB Networks, Ireland
- 1440** *Integrated Risk Assessment of Flood Hazards in Electrical Distribution Infrastructure*  
**Jacob RODRIGUEZ RIVERO\* (1), Ana ROMERO GARCÍA (1), Gustavo PRESA ARIAS (1), David PEÑALVER MARTÍN (1), Carlos Alberto SANCHEZ OSPINA (1), Luis CHOFRE GARCÍA (1), José BELLO GARCÍA (1), Marta COZAR GUEVARA (1), Gabriele LICASALE (1), Glodeanu ADRIÁN (2), Ana MERA (2), Elena TURIENZO LÓPEZ (2), Jorge PAZ JIMÉNEZ (2)**  
 1: Edistribucion, Spain; 2: TECNALIA, Basque Research and Technology Alliance (BRTA), Spain
- 1442** *Forecast Of The Development Of Electricity Grids In Typical Neighborhoods As Part Of Energy Infrastructure Planning*  
**Julia PÖSSINGER\* (1), Markus ZDRALLEK (1), Bastian BAUHAUS (2), Moritz EDINGER (2), Nerdy KÜHN (2)**  
 1: University of Wuppertal, Germany; 2: SWKiel Netz GmbH, Germany
- 1447** *Graph-Based Modelling of Optimization Problems for DC Direct Line Systems*  
**Andrew GARNER (1), Georg BRANDSTÄTTER (1), Clemens KORNER\* (1), Gerhard JAMBRICH (1), Carolin MONSBERGER (1), Michael NIEDERKOFER (2), Andreas SCHNEEMANN (2), Stefan STRÖMER (1), Yannick WIMMER (1)**  
 1: AIT Austrian Institute of Technology, Austria; 2: Enlion, Austria
- 1449** *Comparison of Automated Methods for Heat Network Expansion from an Economic Perspective*  
**Nicole BARTON\***, Timo MAYREGGER, Markus ZDRALLEK  
 Bergische Universität Wuppertal, Germany

- 1450** *Impact Of Inverter-Based Resources Penetration On Reliability Of Islanding Relays Performance*  
**Mehdi BIGDAD\***, Alexandre BACH, Trung Dung LE, Marc PETIT  
 CentraleSupélec / GeePs laboratory, France
- 1454** *Comparative Assessment of Distribution Network Architectures under Varying DER Penetration Levels*  
**Carlos CHAPARRO\***, Vincent DEBUSSCHERE, Marie-Cécile ALVAREZ-HERAULT, Jérôme BUIRE  
 G2ELab, France
- 1455** *Operational Risk Quantification for Preventive Control in Low Voltage Grids with Distributed Energy Resources*  
**Sarah FAYED\* (1,2)**, Frank SCHULDT (1), Karsten VON MAYDELL (1)  
 1: DLR Institute of Networked Energy Systems, Oldenburg, Germany; 2: Carl von Ossietzky University of Oldenburg, Oldenburg, Germany
- 1459** *Integrated Planning of Electrical Distribution Grids and ICT Infrastructure*  
**Alexander PETERS\***, Julian BIGALKE, Simon BRAUN, Luka ALHÄUSER  
 CISNEIROS E FARIA, Andreas ULBIG  
 IAEW at RWTH Aachen, Germany
- 1462** *DeepCoubogen: A Privacy-Preserving Synthetic Load Curve Generation Service*  
**Jacqueline TRICOT**, Sofiane BOUIBEB, Paul PIKE\*, Sébastien DELBOS  
 Enedis, France
- 1464** *Addressing Distribution Network Planning: A Case Study in Northern Italy*  
**Davide FRATELLI\* (1)**, Aleksandar DIMOVSKI (1), Corrado Maria CAMINITI (1), Matteo SPILLER (1), Marco MERLO (1), Francesca CRAMAROSSA (2)  
 1: Department of Energy, Politecnico di Milano, Italy; 2: Deval S.p.A
- 1466** *Impacts of the Electrification of Transport and Heating Sectors on Urban Low-Voltage Grids: Expected Load Development and Resulting Expansion Requirements*  
**Dominik J. STORCH\* (1)**, Simon NIEDERLE (2), Christoph J. STEINHART (3), Michael KREISSL (3), Christian GUTZMANN (3), Maik GÜNTHER (4), Michael FINKEL (1), Rolf WITZMANN (2)  
 1: Technical University of Applied Sciences Augsburg, Germany; 2: Technical University of Munich, Germany; 3: SWM Infrastruktur GmbH & Co. KG, Germany; 4: Stadtwerke München GmbH, Germany

- 1470** *Phase Switch System: Innovative Ways of Increasing Headroom in Low Voltage Distribution Networks*  
**Jacob LYNCH\* (1), Martin CATON (2), Edward CORR (3), Andrew FORSTER (4), Peter LANG (5)**  
 1: National Grid Electricity Distribution; 2: Low Carbon Electric Limited; 3: Power Networks Demonstration Centre; 4: Nortech Management; 5: UK Power Networks
- 1471** *A Closed-Form Model for Fast Short-Circuit Analysis in Active Distribution Networks*  
**Moritz WERMANN\*, Jutta HANSON**  
 Department of Electrical Engineering and Information Technology, Institute of Electrical Power Supply with Integration of Renewable Energy, Technical University of Darmstadt
- 1472** *A Scalable Reliability Optimization Methodology For Large Utilities*  
**Luciano MASOTTI\* (1), Michele PASTORE (1), Francesco CAPPUCCIO (2), Ehsan POURHOSSEINI (2), Matteo BRESCHI (2), Tariq KHAN (2), Davide Stefano PICCAGLI (2)**  
 1: Enernex LLC, United States of America; 2: CESI S.p.A. Italy
- 1475** *Enabling Vehicle-to-Grid Connections on LV Networks*  
**Andrew URQUHART\* (2), Murray THOMSON (2), Liza TROSHKA (1)**  
 1: National Grid, United Kingdom; 2: Loughborough University
- 1479** *Breeding Unicorns: Phenomenon-driven Forecasting for Next Generation Electricity Network Asset Management*  
**Joel SEPPÄLÄ, Marko JUNTUNEN\***  
 Advian Oy, Finland
- 1485** *Reliability Assessment Of §14a EnWG Grid Control And Impact On Redundancy And Fallback Strategies*  
**Charlotte WEITZEL\* (1), Prof. Dr. David ECHTERNACHT (2), Christoph CHRISTOFOLINI (3), Dr. Xiaohu TAO (3)**  
 1: energyandpeople GmbH; 2: University of Applied Sciences Düsseldorf; 3: Schleswig-Holstein Netz GmbH
- 1486** *Optimal Day-Ahead Operating Envelope Allocation of DSO Considering Commitment Uncertainty of DER Aggregators*  
**Yerim LEE\*, Dongjun HAN, Changhyun JEON, Hojun YANG, Dongjun WON**  
 Inha University, South Korea
- 1487** *Resolving Unbalance Due To Single-phase Transformers On HV Feeders*  
**Andrew URQUHART\* (1), Iro PSARRA (2), Neville RICHARDS (2), Thomas WILSON (2), Murray THOMSON (1), David PENFOLD (3)**  
 1: Loughborough University, United Kingdom; 2: CGI; 3: National Grid Electricity Distribution

- 1491** *A Two-Stage Hybrid Clustering and Machine-Learning Framework for Topology-Agnostic OLTC Voltage Control in Distribution Networks*  
**Cleberton REIZ\***, **Everton ALVES**, **Clara GOUVEIA**, **Micael SIMÕES**, **Jorge PEREIRA**  
 INESC TEC, Portugal
- 1494** *Impact of Communication Disruptions on Grid-Serving Flexibility Control*  
**Farah NASR\***, **Nikita KIRSCH**, **Simon BRAUN**, **Andreas ULBIG**  
 IAEW at RWTH Aachen University, Germany
- 1498** *Long-term Load Forecast For Distribution System Using LLM*  
**Aris Evangelos DIMEAS\* (1)**, **Sotiris CHRISTOPOULOS (1,2)**  
 1: National Technical University of Athens, Greece; 2: Hellenic Distribution Network Operator
- 1500** *From Geographic Information System to Electrical Modeling and Analysis*  
**Savvas PANAGI (1,2)**, **Louiza STYLIANIDOU\* (1,2)**, **Phoivos THERAPONOTOS (1)**, **Chrysovalantis SPANIAS (1)**, **Petros ARISTIDOU (2)**  
 1: Distribution System Operator, Electricity Authority of Cyprus (DSO); 2: Sustainable Power System Laboratory, Cyprus University of Technology
- 1507** *Comparing the Benefits of Resilience-Oriented Investments and Operation Strategies in Distribution Networks*  
**Giuditta PISANO\***, **Adriano CASU**, **Fabrizio PILO**  
 University of Cagliari, Italy
- 1508** *Impact of Hybrid Wind and Solar Power Plants on the Grid Utilisation and Simultaneity Factors in Distribution Grids*  
**Nina ŠTUMBERGER\***, **Rosa TERKOWSKI**, **Simon BRAUN**, **Andreas ULBIG**  
 IAEW at RWTH Aachen University, Germany
- 1509** *A Reinforcement Learning Approach for the Optimal Service Restoration of Power Distribution Networks Facing Heatwaves*  
**Adriano CASU\***, **Samuele SETZU**, **Barbara CANNAS**, **Giuditta PISANO**, **Fabio PISANO**, **Fabrizio PILO**  
 University of Cagliari, Italy
- 1516** *Exploring the Dynamics of Reinforcement Learning Agents Using Flexible Load Profiles to Improve Electrical Grid Management*  
**Sven SAUERBAUM\* (1)**, **Daniel HENN (2)**, **Joachim GERLACH (3)**  
 1: VIVAVIS AG, Germany; 2: University, Siegen; 3: Albstadt-Sigmaringen University

- 1517** *Curative System Operation in the 110 kV Distribution Grid: A quantitative analysis of curative system operation to reduce preventive redispatch measures*  
**Johannes HEID\* (1,2), Jakob SEESE (2), Angela Maria GAMBA CARDENAS (1,2), Andrea SCHOEN (2), Nils BORNHORST (1), Martin BRAUN (1,2)**  
 1: University of Kassel, Germany; 2: Fraunhofer IEE
- 1518** *Large-Scale MV Consumer Load Forecasting via Consumer Clustering and Global Models*  
**Christophe CHAUSSIN\*, Alaa BARNAT, Gilles CORDIER, Axelle COUSINOU, Mehdi EL KANSOULI, Laurine HAMARD, Yue HONG, Iyadh KIOUA, Tsiry RASENDRASOA, Maxence ROBAUX, Côme STEPHANT, Raphaël TEBOUL**  
 Enedis, France
- 1519** *A Test and Validation Framework for Grid Data Analytics with an Application to Congestion Forecasting*  
**Gertjan KOK\* (1), Helko VAN DEN BROM (1), Ties VAN DER HEIJDEN (2), Bart PLEITER (3)**  
 1: VSL B.V.; 2: TU Delft; 3: Alliander N.V.
- 1521** *Power Dispatch and Voltage Control Tool for Hybrid AC/DC Distribution Grids*  
**Bence BEREZKI\*, Artem MEDVEDEV, Bálint HARTMANN, István VOKONY**  
 Department of Electric Power Engineering, Faculty of Electrical Engineering and Informatics Budapest University of Technology and Economics
- 1524** *A Constraint-Aware Method for Deriving PCC-Level Flexibility Envelopes in Distribution Networks*  
**Simona RUGGERI\*, Susanna MOCCI, Fabrizio PILO**  
 University of Cagliari, Italy
- 1525** *Estimating EV Hosting Capacity Using Electrical and Territorial Descriptors*  
**Simona RUGGERI\*, Sara CARCANGIU, Gianni CELLI, Giuditta PISANO, Alessandro SECHI, Gian Giuseppe SOMA, Fabrizio PILO**  
 University of Cagliari, Italy
- 1526** *From Regional Evidence to National Planning: A Data-Driven approach for DSO Decision Support*  
**Simona RUGGERI\* (1), Gianni CELLI (1), Giuditta PISANO (1), Gian Giuseppe SOMA (1), Fabrizio PILO (1), Daniela DI ROSA (2), Claudio PREGAGNOLI (2), Luca DE CAROLIS (3), Simone FERRERO (3), Fabio CAZZATO (3)**  
 1: University of Cagliari, Italy; 2: Enel foundation, Italy; 3: E-distribuzione, Italy

- 1529** *Unlocking Hidden Capacity in the Underground Power Cables Networks Through Accurate Thermal Modelling*  
**Marius ENGBRETHSEN\***, **Wojciech PORADOWSKI**, **Rune JACOBSEN**, **Einar Kirkhus NILSEN**  
 REN, Norway
- 1530** *Line-Specific Long-Term Static Rating of HV Overhead Lines Based on Historical Dynamic Line Rating Data*  
**Adam BABŚ\***, **Tomasz SAMOTYJAK**  
 Institute of Power Engineering, Poland
- 1532** *Proactive Anomaly Detection in Smart Grid Networks Using a Dynamic Weighted Multi-Model Voting Framework*  
**Sharon BOAMAH\* (1)**, **Priya MITTAL (1)**, **Michel CARABALLO (2)**, **Janise MCNAIR (1)**, **Arturo BRETAS (3)**  
 1: University of Florida, United States of America; 2: Université Grenoble Alpes; 3: CNRS
- 1534** *Modelling ONAN Transformers Retrofitted As ONAF For Transformer Adequacy Studies In Distribution Network Planning*  
**Jacob Mathew KARUMAMKOTT\***, **Sinéad HANLEY**, **Cristina COLEMAN KENNY**  
 ESB Networks, Republic of Ireland
- 1535** *Evaluation of AI-based Forecasting Models for Electricity Demand at Household Level: Focus on Generative AI Models*  
**Erwan CHIBOUT\***, **Simon CAMAL**, **Georges KARINIOTAKIS**  
 Mines Paris PSL, France
- 1536** *Impact of Storage Facilities Participating in Energy and Balancing Markets on Distribution Networks*  
**Lucas LAFAYE\* (1)**, **Remy RIGO-MARIANI (1)**, **Vincent DEBUSSCHERE (1)**, **Marie-Cecile ALVAREZ HERAULT (1)**, **Leonard BACAUD (2)**, **Jeremy HIRSCH (2)**, **Philippe CROS (2)**, **Pierre GRANGER (2)**  
 1: University Grenoble Alpes, France; 2: Enedis, France
- 1537** *Flexibility-Aware Residential Consumption Forecasting: A Hybrid Machine Learning and Foundation Model Approach for Nudge-Based Demand Response*  
**Erwan CHIBOUT\***, **Simon CAMAL**, **Georges KARINIOTAKIS**  
 Mines Paris PSL, France

- 1543** *Power-Bounded Microgrids for Hosting Capacity Enhancement and Reinforcement Deferral in Distribution Networks*  
**Yahya NADERI\* (1), Roya NADERI (2), Kailash SINGH (1)**  
 1: SPD Major Connections, SP Energy Networks, Glasgow, United Kingdom; 2: Department of Electrical Engineering, He.C., Islamic Azad University, Heris, Iran
- 1546** *Data-Driven Risk and Fragility Assessment of Power Networks under Storm Events Using Causal Learning*  
**Bohan LI\* (1), Min SHI (1,2), Yiwei HU (1), Hua PANG (1), Chenghong GU (1)**  
 1: Department of Electronic & Electrical Engineering, University of Bath, United Kingdom; 2: School of Electrical Engineering and Automation, Nantong University, China
- 1551** *Institutional Drift in Power System Planning*  
**Bálint HARTMANN\*, Balázs Ágoston TURÓCZI, Péter SŐRÉS, István VOKONY**  
 Budapest University of Technology and Economics, Hungary
- 1552** *Digital Twin for Day-ahead and Intraday Market Co-optimization Using Dynamic Line Rating*  
**Bálint HARTMANN\*, Bence BERECZKI, Péter SŐRÉS, István VOKONY**  
 Budapest University of Technology and Economics, Hungary
- 1553** *Unified LSTM-LLM Testbed for Real-Time Renewable Bidding and DSO Grid Feasibility Analysis*  
**Hojun YANG\* (1), Bambuushar MUNKHTULGA (1), Sanghun AHN (1), Hyeonseop SHIN (2), Dongjun WON (1)**  
 1: Department of Electrical and Computer Engineering, Inha University, Incheon, South Korea; 2: Department of Mechanical Engineering, Inha University, Incheon, South Korea
- 1563** *A P2P-based Transactive Energy Framework for Reconfigurable Power Distribution Networks with Mixed Architecture*  
**Monir ASHRAFI\* (1), Seddik BACHA (1), Raphael CAIRE (1), Ali ABBASPOUR (2), Mahmud FOTUHI-FIRUZABAD (2), Sajjad FATTAHIAN-DEHKORDI (3)**  
 1: University Grenoble Alpes, France; 2: Sharif University of Technology; 3: Aalto university
- 1564** *Algorithm-Driven Demand Flexibility: Driving Customer Engagement and Grid Optimization under Demand Side Management Strategies*  
**Sujata GURUJI, Nilesh KANE\*, Shriram SAVARKAR, Chintamani CHITNIS**  
 Tata Power Company Limited, India

- 1567** *Data-Driven Identification of Residential Heat Pump Types and Cycling Characteristics Using Smart Meter Data*  
**Meysam ASADI\***, **Robbert CLAEYS**, **Kamran JALILPOOR**, **Jan DESMET**  
EELab/Lemcko, Department of Electromechanical, Systems and Metal Engineering,  
Ghent University, Belgium
- 1580** *Comprehensive and Sustainable Distribution Network Planning and Optimization Using CYMDIST: A Technical Assessment of NPCL's 33-kV/11-kV System*  
**Sovik SHARMA\***, **Kirti TRIPATHI**, **Gaurav SHARMA**  
NOIDA POWER COMPANY LIMITED, India
- 1581** *Load Transfer Automation Scheme for Distribution Network Reconfiguration and N-1 Contingency Compliance*  
**Talal AL SUQUTRI\***  
Nama Electricity Distribution Company, Oman

# Theme 2 – Lessons Learned from Implementing Innovations in Distribution Networks

- 1121** *Smart Meter Integrated Controllable Load Based Demand Side for Enhancing Power System Frequency under Communication Delay*  
**Ahmed ELMELEGI\***  
Upper Egypt Electricity Distribution Company, Aswan, Egypt
- 1122** *Implementation of EHV PQ Measurement in the Czech Republic*  
**Daniel VESELÝ, František RAJSKÝ\***  
ČEPS a.s., Czech Republic
- 1123** *Non-Invasive Thermal Aging Monitoring System for Medium-Voltage DC Cables*  
**Thanh Kha TRAN\*, Raphael GUFFOND, Lina RUIZ, Samuel GRIOT**  
Nexans, France
- 1124** *Lessons Learned from Building and Deploying a Generic IA Tool to Qualify Multiple Textual Data at Enedis*  
**Thomas LÉVY\* (1), Sébastien DELBOS (2), Axel JOURNE (3)**  
1: Enedis, France; 2: Enedis, France; 3: Enedis, France
- 1126** *A Heuristic Algorithm For Distribution Grid Congestion Management*  
**Zhenyuan WANG (1), Susanne SCHMITT\* (2), Marco GIUNTOLI (2), Faiq GHAWASH (2), Milos SUBASIC (2)**  
1: Hitachi Energy, United States of America; 2: Hitachi Energy, Germany
- 1136** *Evaluation of a Mixed Operating Envelope for EV Charging Based on Real Building Load Profiles*  
**Alfred EINFALT\* (1), Andreas FERNBACH (1), Gerhard ENGELBRECHT (1), Juliana KAINZ (1), Daniel HAUER (1), Sabine KUBICEK (2), Roland ZOLL (2), Thomas POLL (2)**  
1: Siemens, Austria; 2: Wiener Netze, Austria
- 1142** *Implementing DER Control And Flexible Connections in The Netherlands, The Stedin Case Study*  
**Anne VAN DER MOLEN\*, Ranko STOJAKOVIC, Sjors VAN DER HEIJDEN, Mark SCHEER, Ruurd LAMMERS, Stefan VAN DER MAAT**  
Stedin, The Netherlands

- 1143** *Allocation of Dynamic Operating Envelopes in Radial Distribution Networks*  
**William DE CARVALHO\* (1), Florin CAPITANESCU (1), Cyril RASIC (2), Jean-François TOUBEAU (2), François VALLEE (2)**  
 1: LIST – Luxembourg Institute of Science and Technology, Luxembourg; 2: UMONS – University of Mons, Belgium
- 1144** *Field Data of High-Performance Circuit Breakers with Integrated Data Concentrator*  
**Luca RAVANELLI\*, Catia SANTINI, Stefano MELZI, Alessandro ZANI, Marco RIVA**  
 ABB S.p.a., Italy
- 1146** *Controlled Switching: Enabling Future-Ready MV Networks. Key Lessons from High-Duty Field Applications*  
**Marco RIVA\*, Luca RAVANELLI, Catia SANTINI, Stefano MELZI, Alessandro ZANI**  
 ABB spa, Italy
- 1148** *Construction And Operation Of A Stationary Battery Energy Storage System Utilizing Used EV Batteries*  
**Hiroyuki YOSHIDA\*, Shinichi DOI, Toshiki ODA**  
 The Kansai Electric Power Co., Inc., Japan
- 1149** *Performance Evaluation of Novel Injection-based ASC Control Method Using Primary Testing*  
**Janne LEMINEN\* (1), Janne ALTONEN (1), Saku SIERMALA (1), Mika TAUSA (1), Hanna-Mari AALTO (2), Petteri KANGASLUOMA (2)**  
 1: ABB Oy, Finland; 2: Elenia Verkko Oyj, Finland
- 1151** *Implementing BPL Technologies On The Low Voltage Network: First Results From The Broadband And Narrowband PLC-Combined Rollout In Spain*  
**Miguel M BURGUETE\*, Alberto SENDIN, Diego GARCIA, J Sebastian GOMEZ**  
 Iberdrola España, Spain
- 1153** *Evaluation Of A Rule-Based Energy Management System For Residential White Goods*  
**Senne STIENERS\*, Lies DEBRUYNE, Jan CAPPELLE, Marta VANIN**  
 KU Leuven, Electa Ghent
- 1159** *Coordinated Control System for Power Quality in Distribution Networks with Wide-Band Sensing and a Cloud-Edge-End Architecture: Design and Application*  
**Tongxun WANG\*, Wenxiao MA, Dandan FENG, Zhikai WANG, Zhaoliang LI, Yang WANG**  
 CEPRI, China

- 1161** *Wide-Area Voltage Optimisation for Active Distribution Networks*  
**Andreas KAROGIANNIS\* (1), Georgios KARAMANIS (1), Andreas AVRAS (2,3), Allan DOWNIE (2,3), Ibrahim FAIEK ABDULHADI (2,3), Oussama YOUSFI (4), Colin SCOBLE (4), Gustavo LEONARDO (4), Odilia BERTETTI (4), Elyse UWIMPAYE (4), Ewan PATON (4), Parul AGHI (4),**  
 1: SMPnet, UK; 2: PNDC, UK; 3: University of Strathclyde, UK; 4: UK Power Networks, UK
- 1163** *Pilot-Phase Results of E.ON Hungária's Local Flexibility Market Platform*  
**Gabor Mihaly PETER\*, Szabolcs PAPP**  
 E.ON Észak-dunántúli Áramhálózati Zrt., Hungary
- 1164** *Lessons Learned from Stakeholder-Driven Requirement Analysis for an Open and Modular Energy Management Platform*  
**Pranav Jayant KULKARNI\* (1), Alexander GEIGER (1), Sanket GAIKWAD (2), Michael BRAND (3), Andreas ULBIG (1,2), Antonello MONTI (1,2), Sebastian LEHNHOFF (3)**  
 1: Fraunhofer Institute for Applied Information Technology FIT, Germany; 2: RWTH Aachen University, Germany; 3: OFFIS – Institute for Information Technology, Germany
- 1167** *Distribution Fault Anticipation: Real-time Health Monitoring for Distribution Networks Using Waveform Analytics*  
**Jeffrey WISCHKAEMPER\*, B. Don RUSSELL, Carl BENNER, Karthick MANIVANNAN**  
 Texas A&M University, United States of America
- 1173** *Congestion Assessment in Distribution Grids Using Python and OpenDSS Conversion Pipeline*  
**Daniyal Ahmed KHAN\* (1), Susanne SCHMITT (1), Marco GIUNTOLI (1), Faiq GHAWASH (1), Martin LINDNER (2), Athanasios KRONIRIS (3)**  
 1: Hitachi Energy Research, Germany; 2: Hitachi Energy Germany AG; 3: Hochschule Darmstadt
- 1176** *Digital Low-Voltage Monitoring Deployment In Bucharest: Lessons Learned From A Large-Scale Field Implementation*  
**Rafael ARRANZ PADILLA\* (1), Stefan-Mircea ILIESCU (2), Gheorghe-Ioan NICOLAESCU (2), Georgiana-Florentina BALANICA (2), Andrei-Sebastian POPA (2), Carles PUJOL SOLER (2)**  
 1: Smilics Technologies, Spain; 2: Retele, Romania
- 1180** *Phoenix: Intelligent Fault Detection for Resilient and Sustainable Distribution Networks*  
**Benoit PUEYO (1), Jean François AURIN\* (1), Alain GRISVAL (2)**  
 1: Fournier Grospeud Synerys; 2: OMEXOM, France

- 1182** *Data-Driven Surrogate Limit Identification on Feeder Currents and Substation Loading to Guarantee Voltage Stability in Low-Voltage Grids*  
**Jano SCHUBERT\* (1,2), Edwin MORA (1), Mathias DUCKHEIM (1), Stefan NIESSEN (1,2)**  
 1: Siemens AG, Germany; 2: Technical University of Darmstadt, Germany
- 1183** *Powering Industrial-Scale Grid Inspections with AI-Powered Asset Analytics*  
**Uttej REDDY, David WICKSTRÖM, Dimitra TSAKMAKOPOULOU\***  
 Arkion Solutions AB, Sweden
- 1186** *Practical Implementation of Power Envelopes at a Belgian Distribution System Operator*  
**Thibaut THÉATE\*, David VANGULICK**  
 ORES, Belgium
- 1187** *Piri: Using Smart Meters And AI To Determine The LV Grid Connectivity*  
**Koen VANTHOURNOUT\* (1), Bruno MACHARIS (2), Bert DE DECKER (1), Harm LEENDERS (2), Reinhilde D'HULST (1)**  
 1: Orion Grid Technologies; 2: Fluvius System Operator
- 1191** *Technical and Market Outcomes and Operational Insights from the MiNDFlex Project: Evaluating Local Flexibility in Milan's Distribution Grid*  
**Edoardo DACCÒ (1), Diego RAGGINI\* (2), Fabio LEONARDI (2), Alessandro CIROCCO (2), Hasnain SALMAN (2), Gaetano IANNARELLI (2), Alberto VANNONI (3), Riccardo LAZZARI (3), Alessandro BOSISIO (4), Davide FALABRETTI (1)**  
 1: Politecnico di Milano, Milan, Italy; 2: A2A, Milan, Italy; 3: RSE, Milan, Italy; 4: Università di Pavia, Pavia, Italy
- 1192** *Performance Monitoring in IEC 61850-Based Digital Substations: CPFL's Experience at Souzas Substation*  
**Wagner HOKAMA\* (1), Adriano Peres DE MORAIS (2), Daniel Pinheiro BERNARDON (2)**  
 1: CPFL, Brazil; 2: UFSM, Brazil
- 1195** *Continuous PQ Insights for Grid-Friendly Non-Linear Assets*  
**Carina LEHMAL\*, Peter DOLLFUSS, Josef VOGEL, Zeljko BOBAR**  
 Tele Haase, Austria
- 1200** *From Concept to Reality: How Sensorization and Automation Are Transforming MV & LV Networks*  
**José GONÇALVES\* (1,2), Pedro C. MIGUEL (2), Bruno E. SANTO (3)**  
 1: E&C & Asset Technology, E-REDES - Distribuição de Eletricidade, S.A, Lisboa, Portugal; 2: INESC Coimbra - Instituto de Engenharia de Sistemas e Computadores de Coimbra, Coimbra; 3: Smart Grid Center PT, E-REDES - Distribuição de Eletricidade, S.A, Lis

- 1204** *An Advanced Approach to Fault Location Combining TDR and Surge Time-of-Arrival Difference Methods*  
**Tatsuro AKIMOTO\* (1), Masayuki WAKUTANI (1), Masahiro MINAMI (1), Takumi YOSHIOKA (1), Takaya ANEGAWA (1), Tohlu MATSUSHIMA (2), Takashi HISAKADO (3), Shin TOGUCHI (4), Yuya KAWACHI (4)**  
 1: Kansai Transmission and Distribution, Inc., Japan; 2: Kyushu Institute of Technology, Japan; 3: Kyoto University, Japan; 4: DAIHEN Corporation, Japan
- 1205** *Field Demonstration on Degradation Diagnosis and Evaluation of Stationary Battery Energy Storage Systems in Operation Using Charging Curve Analysis*  
**Takahisa HAYASHI\* (1), Yuta NAKAMURA (1), Takao TOKUHARA (1), Toshiki ODA (1), Masahiro TANAKA (2), Takenori KOBAYASHI (2), Tomokazu MORITA (3)**  
 1: The Kansai Electric Power Company, Inc., Japan; 2: Toshiba Energy Systems & Solutions Corporation, Japan; 3: Toshiba Corporation, Japan
- 1212** *Customer-Oriented Online Service for Distribution Network Optimization and Promotion of Energy Transition*  
**Minna KURONEN\*, Susanna KARMELA**  
 Helen Electricity Network Ltd, Finland
- 1218** *A Network Pilot Demonstration on the Monitoring and Control Capability of Rooftop Solar PV in Ireland*  
**Ramy ALI\*, Ronan MEERE, Edmund O'CARROLL**  
 Electricity Supply Board (ESB) Networks, Ireland
- 1219** *Economical and Resource-Saving Use of Phase Shifting Transformers within the Swiss 150 kV Grid of the City of Zurich*  
**Andri CASURA\* (1), Britta HEIMBACH (1), Philipp SCHMITT (1), Martin WOLFRAM (2)**  
 1: ewz, Swiss; 2: Maschinenfabrik Reinhausen GmbH, Germany
- 1225** *Increase In Grid Utilisation & Capacity Through Impedance Reduction & Voltage Control Using Capacitive Transfer System Cable*  
**Ashkan Daria HAJILOO\*, Karl DE JONG, Charles LUCAS-CLEMENTS, Jorge VIÑUELA PÉREZ**  
 Enertechnos, United Kingdom
- 1226** *Impact of A Vacuum Circuit-breaker on a MV Network: Modelling, Stresses Developed, and Description of the Non-linearity Involved*  
**Michel RIOUAL\* (1), Charbel YOUSSEF (2)**  
 1: EDF, France; 2: Grenoble\_INP-Ense3

- 1233** *Layered Control for Multi-Use Battery Storage*  
**Jacco REULING\* (1), Juan Camilo LÓPEZ (2), Deepak TUNUGUNTLA (3), Pieter ZEILSTRA (3), Johann L. HURINK (1), Gerwin HOOGSTEEEN (1)**  
 1: University of Twente, The Netherlands; 2: Alliander N.V., The Netherlands; 3: Saxion University of Applied Sciences, The Netherlands
- 1235** *Applications of Machine-Learned State Estimation in Low-Voltage*  
**Marc DÜNSER\*, Denis VETTORETTI, Clemens KORNER**  
 AIT- Austrian Institute of Technology - Center for Energy, Austria
- 1236** *Identifying And Mapping Shared Service Cables Using Artificial Intelligence For The Adoption Of Low Carbon Technology On The LV Network Of Ireland*  
**Amandeep SINGH\*, Sadaf ZAHEER, Tara NÍ REACHTAGÁIN, Jack HERRING**  
 ESB, Ireland
- 1241** *Dynamic Line Rating in Practice: Comparing Sensor-Based and Sensorless Methods on the Portuguese Grid*  
**Davide RAPOSO\*, André NEVES, Ana Carolina MONTEIRO, Diana MACEDO, David CARVALHO, Mariana CÔRTE-REAL**  
 E-REDES, Portugal
- 1242** *Sparse-PMU-Based Fault Location for Enhanced Operation of Distribution Power Networks*  
**Fardin NOORI\* (1), Lorenzo PERETTO (1), Massimo BARTOLUCCI (2), Luigi PETRIANNI (2), Alessandro MINGOTTI (1), Roberto TINARELLI (1)**  
 1: Department of Electrical, Electronic, and Information Engineering, University of Bologna, Italy; 2: Innovation ENEL Grids, ENEL Group, Italy
- 1254** *Demonstrating an Open Digital Twin Platform for Unified MV-LV Operation*  
**Michael BRAND\* (1), Kersten BLÜMEL (1), Jan-Henrik BRUHN (1), Alexander GEIGER (2), Pranav Jayant KULKARNI (2), Andreas ULBIG (2,3), Antonello MONTI (2,3), Sebastian LEHNHOFF (1)**  
 1: OFFIS - Institute for Information Technology, Germany; 2: Fraunhofer Institute for Applied Information Technology FIT; 3: RWTH University Aachen
- 1256** *A Systematic Approach To Successfully Implement Innovation For Power System Assets*  
**Emma JUSERIUS\*, Anders JOHANSSON**  
 Vattenfall Eldistribution AB, Sweden
- 1257** *DA/RE – Two Years Of Operational Experience With An IT Platform For Small-Scale Flexibility In Redispatch*  
**Jens HÖNEN\*, Bernd SEIFERT, Florian GUTEKUNST**  
 TransnetBW GmbH, Germany

- 1263** *Pilot for Model-Free Active Flexibility Management for Low-Voltage Grids According to German Regulation (§14a EnWG)*  
**Jano SCHUBERT\* (1,2), Edwin MORA (1), Mathias DUCKHEIM (1), Erhard AUMANN (1), Philipp DOLCH (1), Stefan NIESSEN (1,2)**  
 1: Siemens AG, Germany; 2: Technical University of Darmstadt, Germany
- 1265** *Interoperable Digital Twin Data for Electrical Distribution Grids*  
**Sebastian PETER\* (1), Bharathwajanprabu RAVISANKAR (1), Kavya MADA (2), Felix PROBST (3), Dennis SCHMID (3), Fabian REINDL (4), Gerhard MEINDL (4), Ron BRANDL (2), Marco JUNG (2), Stefan KIPPELT (3), Rajkumar PALANIAPPAN (1), Ulf HÄGER (1)**  
 1: TU Dortmund University; 2: Hochschule Bonn-Rhein-Sieg; 3: ef.Ruhr GmbH; 4: Stadtwerke Wunsiedel GmbH
- 1267** *Tripling Capacity Through Voltage Regulation On Long MV Feeder*  
**Eilert BJERKAN (1), Reidar TJELDHORN (1), Alexander KRISTENSEN\* (1), Morten SJAAMO (2), Simon WEBER (3)**  
 1: Magtech AS; 2: Føie AS; 3: Maschinenfabrik Reinhausen GmbH
- 1269** *QUEST – An Overarching System Control Solution: Live Trials & Digital Twin Validation*  
**David CONKIE\* (1), Mark COLLINS (1), Yunus Cem DUMAN (1), Andrew HOWARD (2), Michael KEDDY (2), Chris GREENFIELD (2)**  
 1: Smarter Grid Solutions, United Kingdom; 2: SP Electricity North West, United Kingdom
- 1270** *Overhead Line Fault Location on 11kV Networks Using a Common Disturbance Information Platform*  
**Greg SHIRLEY\* (1), Samuel JUPE (2), Andrew FORSTER (2), Paul MORRIS (1), Mashood TAHIR (2)**  
 1: National Grid Electricity Distribution; 2: Nortech Management Ltd
- 1271** *EleXsys dSTATCOMs in the E-REDES LV Network: Field Results and Insights for Advanced Volt/Var Control*  
**João BARBOSA\* (1), Mark HIBBERT (2), Shane GOODWIN (2), Dr Edward BURSTINGHAUS (2), Pedro FERREIRA (3)**  
 1: E-REDES, Portugal; 2: Stara Smart Grid; 3: EDP Inovação
- 1273** *Stochastic Multi-Asset Optimisation for Energy Strategic Planning: a Study Case at Brussels Airport*  
**Mattia D'ANDOLA\* (1), Ludéric VAN CALCK (1), Nichita BOZGA (1), Julien VANDEBURIE (2), Thomas WEHENKEL (2), Martin JASIENSKI (3), Frederik VAN CLEEMPUT (3), Pierre-François CROUSSE (1)**  
 1: Jetpack.ai, Belgium; 2: Resa, Belgium; 3: Brussels Airport Company (BAC), Belgium

- 1274** *Lessons Learned from an innovation department at a Belgian DSO*  
**Arnaud ROUFFIGNON\***, Thomas BUISSERET, Thibaut THÉATE, David VANGULICK  
 ORES
- 1275** *Potential For Reducing Redispatch Volumes Through The Use Of Dynamic Line Rating (DLR) And Curative Protection Measures (CRM)*  
**Paul KROEMER\* (1), Antoni CHAJAN (1), Christoph SCHÖNHOFEN (1), Hauke JÜRGENSEN (2), Alexander KROGGEL (2), Matthias RUDOLPH (2)**  
 1: FGH GmbH, Germany; 2: Schleswig-Holstein Netz GmbH, Germany
- 1276** *Active Fault Level Management – Development and Delivery*  
**Mark COLLINS\* (2), Ralph EYRE-WALKER (1), Gary BURNS (2), Russell BRYANS (1), Colin MACKENZIE (2)**  
 1: Scottish Power Energy Network, United Kingdom; 2: Smarter Grid Solutions, United Kingdom
- 1288** *Data Inconsistency In A Century-old Business With Delayed Digitalization: A Daily Algorithm For The Automatic Integration Of Data*  
**Francisco Javier ROS RAPOSO\*, Jacinto JURADO TABARES, Julio Alejandro GONZÁLEZ MEJÍAS, Rubén CARMONA PARDO**  
 Ingelectus, Spain
- 1290** *Customer Perception of Demand-Side Flexibility Tariffs in Switzerland*  
**Christoph IMBODEN\* (1), Vincent RITS (2), Olga FROST (2)**  
 1: Lucerne University of Applied Science and Arts HSLU, Switzerland; 2: Primeo Netz AG, Switzerland
- 1291** *Pythia: Implementing Day-ahead Congestion Management In The German LV Grid*  
**Antonio HERNANDEZ ESPIN\* (1), Alexandra KLINGER (2), David BRUMMUND (3), Philippe DE PAUW (1), Bert DE DECKER (1), Koen VANTHOURNOUT (1), Reinhilde D'HULST (1)**  
 1: Orion Grid Technologies, Belgium; 2: Avacon Netz GmbH, Germany; 3: MITNETZ STROM, Germany
- 1297** *A Future-Proof Control Architecture for System Operator-Owned Power Electronic Devices in Low Voltage Distribution Networks*  
**Mahmood JAMALI\* (1), Grace DENYER (2), Ritika DAS (2), Scott ANGUS (1), David GREENWOOD (1), Matthew DEAKIN (1), Ali KAZEROONI (3), Andrew MOON (2)**  
 1: Newcastle University, United Kingdom; 2: SP Energy Networks, United Kingdom; 3: iGrid Technology Consulting, United Kingdom

- 1300** *Edge-Hosted Virtual Protection Functions: Implementation and Validation of a Docker-Based vIED Using IEC 61850 SV and GOOSE*  
**Mihnea-Cristian MARIN\* (1,2,3), Alexandru TANASESCU (1,3), Prof. Mattia BRAMBILLA (2), Assoc. Prof. Razvan CRACIUNESCU (1)**  
 1: University POLITEHNICA of Bucharest, Romania; 2: Polytechnic University of Milan; 3: Eximprod Engineering, Bucharest, Romania
- 1301** *Algorithm Benchmark for Partial Discharge detection sensitivity in small-scale Medium Voltage Networks*  
**Sebastian PREUSS\* (1,2), Thomas SCHMIDT (1), Guosong LIN (1)**  
 1: Siemens AG, Germany; 2: Technical University of Darmstadt, Germany
- 1304** *Improving Grid Resiliency on Island-Based Microgrids for Reducing Blackouts in Unplanned Disconnection Events by Using Near-Real-Time Monitoring and Flexible Loads Management*  
**Matias Ariel KIPPKE SALOMÓN\* (1,2), Kristin BOBECK (3), Arne BERLIN (3), Linda-Maria WADMAN (4), Pablo ARBOLEYA (1,2)**  
 1: Plexigrid SL, Spain; 2: Universidad de Oviedo, Spain; 3: Vattenfall Eldistribution AB, Sweden; 4: Plexigrid AB, Sweden
- 1306** *AI for Predictive Maintenance and Customer Satisfaction Improvement*  
**Charles GEISMAR\*, Caroline EL KHARRAT, Colin THIRARD, Jérémy BESSON**  
 ENEDIS, France
- 1307** *DIGITECHNETZ – Challenges and Solutions in Implementing a Smart Grid Platform in Real Low-Voltage Distribution Grids*  
**Laura FIEDLER\* (1), Marco WEISENSTEIN (2), Holger HÄNCHEN (3), Uwe SCHMIDT (4), Sven REICHARDT (5), Christian BEHNKEN (6), Peter SCHEGNER (1)**  
 1: TUD Dresden University of Technology, Germany; 2: DigSILENT GmbH, Germany; 3: SachsenNetze GmbH, Germany; 4: F&S Prozessautomation GmbH, Germany; 5: Robotron Datenbank-Software GmbH, Germany; 6: emsys grid services GmbH, Germany
- 1310** *Data-Driven Low-Voltage Grid Operations*  
**Christoph JÄTZ\* (1), Sandrino BENECKE (1), Matthias HANSEN (2), André GEUEKE (2), Nicolas PITTRUF (3), Sebastian KUMPFMÜLLER (3), Christian MEFFERT (4)**  
 1: Avacon Netz GmbH, Germany; 2: Westnetz GmbH; 3: E.ON Grid Solutions GmbH; 4: envelio GmbH
- 1315** *From Hunting Zones to Scale-Up: EDP's Innovation Strategy for Faster Adoptive Solutions in Distribution Networks*  
**Sofia TAVARES\*, Pedro FERREIRA**  
 EDP Innovation, Portugal

- 1316** *Mitigating Faults in Medium–Voltage Distribution Systems Using Electronic Single–Phase Sectionalizers*  
**José Afonso ROMANCINI\***, Lucas Fritzen VENTURINI, Mateus Netto GUIDI, Willian Alano BATISTA  
 Celesc Distribuição S.A., Brazil
- 1318** *Cross–Validation of Bayesian Linear State Estimation on a Real–World German Medium–Voltage Grid*  
**Patrick RITSCHEL\* (1,2)**, Eva BUCHTA (2), Mathias DUCKHEIM (2), Philipp HOFBAUER (3), Simon ERHARD (3), Stefan NIESSEN (1,2)  
 1: Technology and Economics of Multimodal Energy Systems lab, Technical University of Darmstadt, Darmstadt, Germany; 2: Foundational Technologies – Sustainable Energy & Infrastructure, Siemens AG, Erlangen, Germany; 3: Allgäu Netz GmbH & Co. KG, Kempten,
- 1319** *E–REDES Automated Vegetation Management Audit for Distribution Networks Using High–Resolution Satellite Imagery and AI*  
**Ana LISBOA\***, Ricardo BORGES, Artur FIGUEIREDO, Liliana TRINDADE  
 E–REDES, Portugal
- 1322** *From Pilot to Real–World Operation: Implementing Remote Curtailment of LV–Connected PV for Regional Constraint Management – Lessons from Enedis Field Trial*  
**Sasan ROSTAMBEIK TAFRESHI\***, Saber LEHATEM, Thomas SCHALLER, Matthieu ANNE  
 Enedis, France
- 1324** *Sustaining a National Asset–Risk Methodology: Governance, Alignment and Expertise Transition in Common Methodology v3*  
**Joanne PEACOCK (1)**, Landel JOHNSTON\* (2), Gavin HOWARTH (3), Linda HULL (4)  
 1: EA Technology, United Kingdom; 2: Scottish & Southern Electricity Networks, United Kingdom; 3: Northern Powergrid, United Kingdom; 4: EA Technology, United Kingdom
- 1325** *Data Analytics Implementation and Benefits in a Power Distribution Network –AI Fault Prediction Use Case*  
**Frantisek KELEMEN\* (1)**, Anna KULMALA (1), Mika LIFFLANDER (1), Parul AGHI (2), Gustavo LEONARDO (2), Kaikong HO (2), Colin SCOBLE (2), Oussama YOUSFI (2)  
 1: ABB Oy, Finland; 2: UK Power Networks, UK
- 1326** *Beyond Smart Meters: The Next Chapter in Smart Grid Innovation*  
**Pedro CARREIRA\* (1)**, Pedro DEL ROSAL (2), Pedro DANIEL (1), Catarina CALHAU (1), Pedro FERREIRA (3), Moisés LASO (4)  
 1: E–Redes, Portugal; 2: HC Distribución Eléctrica; 3: EDP Inovação; 4: VIESGO Distribución Eléctrica S.L.

- 1328** *Edge Computing for Real-Time Monitoring and Self-Healing in Digital Distribution Systems*  
**MD Raisul ISLAM\* (1), Alessandro BOSISIO (1), Gabriele PALUDETTO (2), Carlo TORNELLI (2), Alessandro CIROCCO (3), Fabio LEONARDI (3)**  
 1: University of Pavia, Italy; 2: RSE S.p.A.; 3: A2A S.p.A.
- 1330** *From Theory to Practice: Determining Optimal Mesh Topology for Smarter Low Voltage Distribution Networks*  
**Diana NASCIMENTO (1), Pedro FERREIRA\* (1), Pablo PAJARON (1), Rui BENTO (2), Jorge BESSA (2), Pedro DEL ROSAL (3), Pedro CARVALHO (4)**  
 1: EDP Innovation, Portugal; 2: E-REDES, Portugal; 3: EDP Redes, Spain; 4: Amber Tree, Portugal
- 1338** *Convergence and Accuracy Analysis of an Alternative State Estimation Method for Medium-Voltage Grids*  
**Wendelin ANGERMANN\* (1), Robert SCHÜRHubER (1), Herwig RENNER (1), Fabian IVOS (1), Thomas WIELAND (2), Maria AIGNER (3), Martin RUHHÜTL (4), David GRUBINGER (5), Christian AMMER (6), Elisabeth HUFNAGL (7)**  
 1: Graz University of Technology Institute of Electrical Power Systems, Austria; 2: Netz Oberösterreich; 3: Energienetze Steiermark; 4: KNG-Kärnten Netz; 5: Salzburg Netz; 6: TINETZ-Tiroler Netze; 7: Wiener Netze
- 1341** *Prosumer-Led Optimisation of Dynamic Operating Envelopes: Towards Fair and Efficient Capacity Allocation*  
**Nanduni NIMALSIRI\* (1), Nariman MAHDAVI (1), Elizabeth RATNAM (1,2)**  
 1: Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; 2: Monash University, Australia
- 1343** *Embedding ESG Performance Into Distribution Network Digitalization: A Strategic Transformation Framework for NEDC*  
**Mahmood AL KHUSAIBI\*, Moosa AL ABRI**  
 Nama Electricity Distribution Company, Oman
- 1348** *Smart and Innovative Approaches to Flexibility & Resilience in Distribution Networks planning: Insights from Residential Load Profiles and Large-Scale Demand*  
**Mansoureh ZANGIABADI\***  
 Northern Powergrid, United Kingdom
- 1350** *Non-Intrusive EV Charging Power Estimation for Improved Pseudo-Measurements in Low-Voltage Grid State Estimation*  
**Eric DÜRHOlt\* (1), Markus ZDRALLEK (1), Bastian BAUHAUS (2)**  
 1: University of Wuppertal, Germany; 2: SWKiel Netz GmbH

- 1358** *Validation of Incremental Measurement Point Optimization in Low Voltage Grids and the influence of PV reference measurements*  
**Luka GILDEHAUS\* (1), Johanna BAUKE (2), Okka GROENEVELD (1), Marco PAU (3), Frank MARTEN (3)**  
 1: EWE NETZ GmbH, Germany; 2: PSI Software SE; 3: Fraunhofer IEE
- 1359** *Integration Of D-FACTS Devices In Power Flow Studies Of Distribution Networks Using MANA.*  
**Tahir KHADIDJA\* (1,3), Raphael CAIRE (1,2), Sellé TOURÉ (3)**  
 1: Univ. Grenoble Alpes, CNRS, Grenoble INP\*, G2Elab, France; 2: Université Claude Bernard Lyon 1, Ampère, UMR5005, INSA Lyon, Ecole Centrale de Lyon, CNRS, France; 3: Ikattan, France
- 1375** *Open Integrated IoT Suite To Master The Challenges Of The Energy Transition*  
**Smaran SUBBAIAH B G\*, Martin GOTTSCHALG, Bitan BHATTACHARYA, Erhard AUMANN, Chaitanya BISALE**  
 Siemens AG, Germany
- 1376** *Grid Guardian – The Platform For Long-Term Monitoring of Compensated Network Parameters*  
**Karolína ČECHOVÁ\* (1,2), Jiří ČERNOCH (1), Michal PANSKÝ (1), Jaroslava ORSÁGOVÁ (2)**  
 1: EG.D., s.r.o., Czech Republic; 2: Brno University of Technology, Czech Republic
- 1378** *Cluster-Based and Regression-Enhanced Forecasting of Day-Ahead Prosumer Demand Schedules in Distribution Systems*  
**Finn NUSSBAUM\*, Joost LINDNER, Anna-Lena STEEN, Payam TEIMOURZADEH BABOLI, Christian BECKER**  
 Institute of Electrical Power and Energy Technology, Hamburg University of Technology, Germany
- 1382** *The Monitoring Of The LV Electric Network Within The Realized Self Optimizing Grid (SoG) Concept Of The MV Electric Distribution Network*  
**Dušan VUKOTIĆ\* (1), Miloš ISAILOVIĆ (2), Stojan ŠIŠKOSKI (1), Sunčica CVETKOVIĆ (2), Božidar ĆIRIĆ (1), Nikola ČOLOVIĆ (2)**  
 1: Elektrodistribucija Srbije Belgrade, Serbia; 2: Siemens Belgrade, Serbia
- 1389** *Analytical Approach To Dynamic Hosting Capacity Assessment In A Distribution System Based On Voltage And Load Time Series*  
**Kristijan Frano ČAVAR, Anton MARUŠIĆ, Ivan PERIŠA, Branimir GABRIĆ\*, Hrvoje JELIĆ**  
 HEP ODS, Croatia

- 1407** *Exploring New Levers Against Upper Voltage Violation Constraint, Medium Voltage Shunt Reactor Investigation Feedback*  
**Djamel HADBI\* (1), Mathieu FERRARIS (2), Jocelyn BOUVIER (1), Dominique LEGRAND (1)**  
 1: EDF R&D, France; 2: Enedis Direction Technique
- 1408** *VICORE: A Hybrid Real-Time Test Platform for PAC Functions Using Virtualized IEDs in Power Distribution Network*  
**Reza RAZI\* (1), Martin LEGRY (1), Frédéric COLAS (1), Xavier GUILLAUD (1), Van-Hoa NGUYEN (2), Thierry COSTE (2), Nicolas FAVARCQ (3)**  
 1: L2EP, France; 2: EDF R&D, EDF Lab Paris Saclay, France; 3: Spherea, France
- 1409** *Feeder Forecast for Proactive Congestion Management in Low-Voltage Grids*  
**Thomas HILDEN\* (1), Alexander BAATZ (1), Alexandra KLINGER (2), Konstantin WENZLAFF (2), Jonas JUNGLAS (3), Jessica STEPHAN (1)**  
 1: envelio GmbH, Germany; 2: Avacon Netz GmbH; 3: Westnetz GmbH
- 1410** *Pilot Results on Autonomous Inverter Control for LV Grids*  
**Dániel Péter DIVÉNYI\* (1,2), András János HORVÁTH (1,2), László Zsolt GERGELY (3), Balázs TÓZSÉR (3)**  
 1: Budapest University of Technology, Department of Power Engineering; 2: Deep Dive Solutions Bt.; 3: E.ON Hungary, Network Innovation and Funding Management
- 1414** *Data Governance for LV Grid Twins\_Lessons from Spain and Portugal*  
**Angel GIMÉNEZ GARCÍA, Iraitz GORROÑO BIKANDI, Haritz ZUBIA URRUTIA\***  
 Ariadna Grid, Spain
- 1421** *Impact of a Multi-MW Grid-forming Battery Storage System on Grid-connected Distribution Network Stability*  
**Boyana GEORGIEVA\*, Hendrik LENS**  
 University of Stuttgart, Germany
- 1423** *Detection of Topological Errors in Distribution Networks Using State Estimation Residual Patterns*  
**Martin CASTIN (1), Alireza BAHMANYAR (1), Adrien LEERSCHOOL (1), Laurine DUCHESNE (1), Adrien BOLLAND (2), Thomas WEHENKEL (3), Simon GERARD\* (3), Damien ERNST (2)**  
 1: Haulogy, Belgium; 2: University of Liège; 3: RESA
- 1426** *Deployment Of 3D Printing At Enedis: Lessons Learned From The Effective Field Implementation Of A Disruptive Technology In The Maintenance Activities Of A DSO*  
**Remi LEBLANC\*, Franck WEBER**  
 ENEDIS, France

- 1429** *A Unique Collaboration Model for Designing Retrofit Sensor Systems for Magnefix MD4 Switchgears: It's All About People, Product, Process*  
**Elise MORSKIEFT\* (1), Denny HARMSSEN (2), Maarten SLOOT (2), Bram POSTHUMA (1), Peter MEIJER (1), Martin BINNENDIJK (1)**  
 1: Eaton; 2: Alliander
- 1433** *Simulation and Realization of Dynamic Grid Coupling and Network Reconfiguration with Real-Time Grid Condition Monitoring*  
**Maximilian GERHARD\*, Frederik GIELNIK, Michael SURIYAH, Thomas LEIBFRIED**  
 Karlsruhe Institute of Technology, Germany
- 1439** *Electric Vehicle Hosting Capacity in Low-Voltage Networks Considering the Probability of Concurrent Charging*  
**Loïc PEROT (1), Manon CORNET (1), Alireza BAHMANYAR (1), Laurine DUCHESNE\* (1), Simon GÉRARD (3), Thomas WEHENKEL (3), Damien ERNST (2)**  
 1: Haulogy, Belgium; 2: University of Liège; 3: RESA
- 1444** *Improving Grid Disturbance Immunity through Fast-Acting Voltage Restoration Technologies*  
**Swapnil RAO\*, Vikas KOUL, Megharaj DAHARE, Pavithra ARASAN, Nisha DUBAL, Shriram SAVARKAR**  
 The Tata Power Company Limited, Mumbai Distribution, India
- 1446** *Dynamic Phase Balancing for Voltage Quality Improvement in LV Networks: Field Trial Results*  
**Rémy CLEENWERCK (1,2), Martin CATON\* (3), Peter LANG (4), Jacob LYNCH (5), Peter CROSSLEY (3,6), Jan DESMET (1), Martin ADE-HALL (3)**  
 1: Ghent University, Belgium; 2: Vrije Universiteit Brussel, Belgium; 3: Low Carbon Electric Limited, United Kingdom; 4: UK Power Networks, United Kingdom; 5: National Grid Electricity Distribution, United Kingdom; 6: The University of Manchester, United Kingdom
- 1448** *Deploying Compact Substation Solutions in Mumbai's Metropolitan Distribution Network*  
**Ketan JADHAV, Shreyas MANE\*, Yash MANE, R POTE, Vikas KOUL, Ajay POTDAR**  
 The Tata Power Company Limited, India

- 1453** *The Case of the Shunt Reactor in Substation 110/35/20 kV Krk, Croatia*  
**Ivica RADETIĆ\***, **Igor VOLARIĆ**, **Josip ŽUTOLIJA**  
 HEP ODS d.o.o., Croatia
- 1457** *Automated AI-Based Asset Mapping: Lessons Learned From Large-Scale Deployment in Distribution Network*  
**André SIH\***, **Thiago CAZES**, **Rodrigo FERREIRA**, **Carlos BISCHOFF**  
 Fu2re, Brazil
- 1461** *Maps of Hosting Capacity for Distribution Networks: Aligning Theoretical KPIs with Strategic Decision-Making Needs*  
**Tommaso DIECI\* (1)**, **Davide FRATELLI (1)**, **Matteo SPILLER (1)**, **Corrado Maria CAMINITI (1)**, **Aleksandar DIMOVSKI (1)**, **Marco MERLO (1)**, **Pierluca PINCIOLLA (2)**  
 1: Politecnico di Milano, Italy; 2: Deval S.p.A.
- 1469** *Proactive Distribution Grid Operation Enabled by Continuous Power Quality Monitoring and Analytics*  
**Nick NAKAMURA\* (1)**, **Kamron TANGNEY (1)**, **Jason JOHNS (1)**, **Luis VEGA (2)**, **Justin DIXON (2)**  
 1: Powerside, United States of America; 2: Dominion Energy, United States of America
- 1474** *Qualification of a Data-Driven Grid Modelling Approach for Low Voltage Networks*  
**Alexandre DELYON\***, **Pacome ARMAGNAT**, **Clementine BENOIT**, **Chloé LUCAS-MONTFORT**, **Noemi VARGHA**  
 Odit-e Sagemcom, France
- 1481** *Automating Fault Location, Isolation, and Service Restoration in German Distribution Networks: Cost-Benefit Analysis and Lessons Learned from the NETZlabor Allgäu*  
**Felix STREHLE\***, **Lukas GROMES**, **Paul HORN**, **Christian LAKENBRINK**, **Miriam BADER**  
 Netze BW, Germany
- 1482** *Small-Scale DC Grid Demonstration in Port of Funchal*  
**Pedro COSTA (1,4)**, **Luis RODRIGUEZ (1,4)**, **Pedro NETO (1,4)**, **Diogo REIS (2,3)**, **Anne NIIN (1,4)**, **Lucas PEREIRA (3,4)**, **Hugo MORAIS\* (1,4)**  
 1: INESC ID; 2: U. Madeira, Portugal; 3: ITI LarSys; 4: IST, Portugal
- 1483** *Enabling Interoperable EV Integration through Protocol Translation: Bridging Smart Charging Infrastructure with Operational Grid Systems*  
**Saba ZAHEDIEH\* (1)**, **Georgios KARAMANIS (2)**, **Anastasios OULIS ROUSIS (2)**, **Aikaterini BOURAZERI (1)**  
 1: School of Computer Science & Electronic Engineering, University of Essex, United Kingdom; 2: SMPnet, London, United Kingdom

- 1484** *Qualification Of A Data-Driven GIS Enhancement Approach For Low-Voltage Grids*  
**Benoît COLANGE, Romain BAILLY\*, Chloé LUCAS-MONFORT, Noemi VARGHA**  
 Odit-e, France
- 1490** *On the Evolution of Reactive Power Demand in Swiss Medium and Low Voltage Networks*  
**Alexandre MACHER (1), Corrodi YVES (2), David LEHNEN\* (2)**  
 1: ETH Zürich, Switzerland; 2: CKW AG, Switzerland
- 1492** *Fast and Accurate Grid State Estimation Using Physics-Informed Graph Neural Networks*  
**Corentin TISSIER\*, Rafael CARRILLO, Diya ACHI, Pierre-Jean ALET**  
 CSEM, Switzerland
- 1493** *Field Evaluation of a Phase Balancer in Low-Voltage Networks*  
**Balázs TÖZSÉR\*, József, Lehel ZOLTÁNI, István TÁCZI DR.**  
 E.ON Hungary, Hungary
- 1496** *OptiQU: Coordinated Multi-Level Voltage and Reactive Power Control for Enhanced Voltage Quality and Secure Grid Operation*  
**Irene HAMMERMEISTER\* (1), Eric TÖNGES (2), Nils BORNHORST (2), Johannes HEID (1,2), Gabriela FRITZLER (1), Timo REHWALD (1), Andrea SCHOEN (1), Ronald HALBAUER (3), Jan MESCHEDE (3), Julia HOLL (4), Sina STRAUSSBERGER (4), Andrey LUZHBIN (5), Maximilian N**  
 1: Fraunhofer Institute for Energy Economics and Energy System Technology (Fraunhofer IEE), Germany; 2: University of Kassel, Germany; 3: Mitteldeutsche Netzgesellschaft Strom mbH, Germany; 4: Thüga AG, Germany; 5: Thüga Energienetze GmbH, Germany; 6: TU
- 1503** *Anticipating the Human Impact of AI : A Workshop-Based Approach of transformation at Enedis*  
**Aude VINZERICH, Melanie CAZES\***  
 Enedis, France
- 1504** *Automated Consolidation Of Dispersed DSO Data Resources Into A Consistent Digital Twin Of The Distribution Grid*  
**Fabian BÖHM\* (1,2), Benjamin SAWICKI (2), Claudio STUCKI (1), Pulkit NAHATA (2), Gabriela HUG (2), Lukas ORTMANN (1)**  
 1: Eastern Switzerland University of Applied Science (OST), Switzerland; 2: ETH Zürich, Switzerland

- 1511** *E.ON-Lab: Prescaling The Transformation Of The Power Grid Into A Digital, Flexible, And Intelligent System*  
**Florian HINTZ\* (1), Esko NOCKMANN (2), Peter LUX (3)**  
 1: Avacon Netz GmbH, Germany; 2: Westnetz GmbH, Germany; 3: Edis Netz GmbH, Germany
- 1520** *Implementation of Real-Time Fault Level Monitoring to Facilitate Decarbonisation Growth*  
**Mark KENT\*, Ralph EYRE-WALKER, Russell BRYANS**  
 SP Energy Networks, United Kingdom
- 1527** *Digital Twin for Future Power and Energy Systems: A Review*  
**Morteza VAHID-GHAVIDEL\*, Sahar SEYYEDEH-BARHAGH, Hannu LAAKSONEN**  
 University of Vaasa, Finland
- 1539** *Building a Virtual Power Plant: Providing Ancillary Services and Local Congestion Management with a Large-scale Fleet of Public EV Chargers*  
**Maud TOUSSAINT SCHURMANS\*, Jelle GARCET, Louis SOKAL, Tommaso DIFONZO**  
 Engie Laborelec, Belgium
- 1542** *A Microservice-Oriented Integration Layer for LV Management Tools*  
**Gil SAMPAIO (1), Jacinta FERREIRA (1), José SOUSA (1), João FERNANDES (2), Raquel FIGUEIREDO (2), José OLIVEIRA\* (2)**  
 1: INESC TEC; 2: Eneida.io
- 1544** *Generating Insights for Low-Voltage Distribution Grids from Per-Phase Smart Meter Data*  
**Mattia SECCHI\* (1), Anton HØYER TROELSEN (1), William Ancher KROGSGAARD AMMENTORP (1), David Valentin TANASE (1), Lunodzo MWINUKA (1), Christian FOTTELER (2), Henriette DYHR RAHBK (3), Carsten BUHL NIELSEN (3), Kai HEUSSEN (1)**  
 1: Technical University of Denmark (DTU); 2: INILAB; 3: Cerius-Radius
- 1548** *A Case Study on the Operation of the Change Simulator for the Prevention of Line Electrical Distributon Due to Worker's Negligence*  
**Yu jung AN\*, Jeong hun YOO**  
 KEPCO, Republic of South Korea
- 1550** *HIL-Based Protection, Automation, and Control Testing Platform: Benchmark of GOOSE Message Transfer Times Across Multi-Vendor IEDs*  
**Jhonatan Antônio CASSOL, Leonardo de Freitas SILVEIRA, Bruna Rafaela dos Santos DIANA, Luiz Fernando FREITAS-GUTIERRES, Adriano Peres MORAIS\***  
 Federal University of Santa Maria, Brazil

- 1554** *Integrating Data Engineering And Data Science Tools To Enhance Distribution Network Performance*  
**Bruno OLIVEIRA\***, **Tauan OLEA**  
 EDP São Paulo, Brazil
- 1560** *A Fault Current Limiting Circuit Breaker Pilot Installation*  
**Jesper MAGNUSSON\* (1)**, **Johan NOHLERT (1)**, **Thomas ERIKSSON (1)**,  
**Martin KROPF (2)**  
 1: ABB AB, Sweden; 2: ABB AG, Germany
- 1561** *An Integrated Framework for Managing Energy Imbalance in Iran's Distribution Networks through Optimal Deployment of Distributed Renewables, Storage Systems, and Demand Response*  
**Rashin ILKA\***, **Habib Allah RAVAGHI ARDABILI**, **Rahil ILKA**, **Abdolhossein ESMAEELZADEH**, **Reza KORDBACHEH**, **Ali KOMASI**  
 Greater Tehran Electric Power distribution Company, Iran
- 1562** *Field Validation and Perspective on Distribution-scale Grid-Forming Battery Storage for Synthetic Inertia*  
**Istvan TACZI**, **Bence BEREZKI**, **Balint HARTMANN\***, **Peter SORES**, **Istvan VOKONY**  
 Budapest University of Technology and Economics, Hungary
- 1565** *Remote Protection for Digital Substations – Piloting Experiences and Analysis*  
**Anna KULMALA\* (1)**, **Ontrei RAIPALA (1)**, **Petri HOVILA (1)**, **Henry NIVERI (1)**,  
**Konsta ANTIKAINEN (2)**, **Tomi ÖSTER (3)**  
 1: ABB Distribution Solutions; 2: Suur-Savon Sähkö; 3: Järvi-Suomen Energia
- 1566** *Proactive Detection of Unauthorized Cryptocurrency Mining Loads in Distribution Networks Using Integrated Electrical and Privacy-Preserving Telecom Data*  
**Abdolhossein ESMAEILZADEH\***, **Habib allah RAVAGHI ARDABILI**, **Rashin ILKA**, **Ali KOMASI**, **Reza KORDBACHE**  
 Great Tehran Electricity Distribution Company, Iran
- 1568** *Implementing And Performance Of Innovative Grid Technologies Increased Grid Utilization And Faster Grid Development For Smart Grid Distribution Networks*  
**Mark NORTON\* (1,2)**, **Peter HUGHES (3,2)**, **Dominic QUENNELL (4,2)**, **Leo RICHARD (5,2)**, **Alexander KRISTENSEN (6,2)**  
 1: Smart Wires, Ireland; 2: CurrENT Europe; 3: CTC Global; 4: Enertechnos; 5: Epsilon-Composite; 6: Magtech

- 1569** *Deployment of Innovative Operating Technologies to Mitigate LV Congestions: Identified Field Problems and Solutions*  
**Ane MARTÍNEZ\***, Alena ULASENKA, Gorka PUENTE, Luis DEL RÍO, Álvaro ORTIZ, Santiago GUTIERREZ  
 Ormazabal, Spain
- 1571** *Embedding Flexibility-Driven Innovation in Distribution System Planning*  
**Gian Giuseppe SOMA\***, Gianni CELLI, Fabrizio PILO  
 University of Cagliari, Italy
- 1573** *Prediction-Based Control of a Building-Integrated DC Microgrid with HESS*  
**Daniela ESER\***, Erik WOEHR, Loris SCHMIT, Jonathan HUGFARD, Michael SURIYAH, Thomas LEIBFRIED  
 Karlsruhe Institute of Technology, Germany
- 1574** *LV outage Management in ADMS*  
**François CHEVALIER, Tom CARRON\***, Henri MEURÉE  
 Sibelga SO, Belgium
- 1577** *Reduction of the Impact of Power Measurement Errors on Grid Parameter Estimation*  
**Johannes ROLINK\***  
 FH Münster - University of Applied Sciences, Germany
- 1579** *Lessons Learned from Developing a DERMS Optimization Platform in a Large-Scale Distribution Network*  
**Paul JAVAL (2), Saoussen ABIDI (1), Tristan BASLER (1), Ilyas GLAIB (1), Jean JODEAU (1), Arthur LEENE (1), Pierre MORDANT (1), Lucas SELINI (1), Emilie PIC (1), Hamza ZAKRAOUI (1), Germain FRANCOIS\* (1)**  
 1: Sia AI, France; 2: Enedis, France
- 1582** *Automated Metro-Style Low Voltage Grid Visualization for Rapid Grid Development*  
**Lennard SCHAAP\* (1), Joan RESSING (1), Anne VAN DALSEN (1,2), Rick VAN KASTEREN (1,2), Sterre DE LANGE (1)**  
 1: Alliander, Arnhem, The Netherlands; 2: ElastIQ-Connect, 's-Hertogenbosch, Netherlands

# Theme 3 – New Regulation and Practices to Spark Innovation and Minimize Business Risk

- 1115** *Connection Of Distributed Electrical Energy Generation Sources With Enabled P/U Characteristic*  
**Matjaž KLANČNIK\***, **David POČIVAVŠEK**  
Elektro Celje, d.d., Slovenia
- 1120** *Adopting the Smart Grid Maturity Model to Drive Regulatory Innovation and Manage Business Risk: The Nama Electricity Distribution Experience, Oman.*  
**Ahmed ALSHAQSI\***  
The Authority for Public Services Regulation, Oman
- 1127** *KYEC – Leveraging Artificial Intelligence for Consumer Empowerment in Smart Metering*  
**Dr. Nilesh KANE\***, **Karunakaran B**, **Ruman MAKNOJIA**, **Dey DEVANJAN**, **Ajit MORE**  
Tata Power Company Limited, India
- 1128** *AI-Driven Load Disaggregation for Smart Meter Consumers*  
**Dr. Nilesh KANE\***, **Karunakaran B**, **Ruman MAKNOJIA**, **Dey DEVANJAN**, **Shetty VINEETH**  
Tata Power Company Limited, India
- 1131** *Survey And Analysis Of Real-time Distribution Grid Congestion Management*  
**Anne VAN DER MOLEN (1,3)**, **Job WELLEMAN (2)**, **Laurens DE VRIES (2)**, **Aad CORRELJE (2)**, **Phuong NGUYEN (3)**, **Koen KOK (3)**, **Peter VAN DER WIELEN (3)**, **Eveline SAHNI\* (1)**  
1: Stedin; 2: TU Delft; 3: TU Eindhoven
- 1145** *Community Energy Storage Systems in Low-Voltage Distribution Networks: Definitions, Use- Cases, and Deployment Challenges*  
**Elias Mandefro GETIE\***, **Md Umar HASHMI**, **Louise SADOINE**, **Geert DECONINCK**  
KU Leuven/EnergyVille, Belgium

- 1198** *Designing Active Operation in Low-Voltage Distribution Grids: Requirements, Interfaces and Roadmap*  
**Eric TÖNGES\* (1), Andrea SCHOEN (1,2), Frank MARTEN (2), Marco PAU (1,2), Denis MENDE (1,2)**  
 1: University of Kassel, Germany; 2: Fraunhofer Institute for Energy Economics and Energy System Technology IEE
- 1199** *Grid Capacity Market For Pre-empting Grid Congestion*  
**Berend HOPMAN\*, Wester COENRAADS, Richard WESTERGA, Michel EMDE**  
 TNO, The Netherlands
- 1206** *Open Data-Driven Estimation of Long-Term Distribution Line Outage Risks in Disasters*  
**Takaya ANEGAWA\* (1,2), Kyosuke TAKAYAMA (2), Atsushi ISHIGAME (2), Takumi YOSHIOKA (1)**  
 1: Kansai T&D, Japan; 2: Osaka Metropolitan University
- 1215** *Preliminary Evaluation: methodological approach for Grid Initiatives analysis, sharing and prioritization*  
**Maria RODNAYA\*, Luca DI STEFANO, Rita LEOPARDI**  
 Enel Grids, Italy
- 1221** *Flexible Connection Agreements And TOTEX Incentive Regulation For Efficient Network Infrastructure Deployment: The Spanish Case*  
**Manuel ROMEO MONTERDE, Tomás GÓMEZ SAN ROMÁN, Miguel Ángel RUIZ HERNÁNDEZ\*, José Pablo CHAVES ÁVILA**  
 Comillas Pontifical University, Institute for Research in Technology (IIT), Spain
- 1227** *Italian 2025 Distribution Network Development Plans, overview and possible improvements*  
**Giacomo VIGANO', Marco ROSSI, Simona SELLITTO\***  
 Ricerca sul Sistema Energetico, Italy
- 1229** *Future for Security of Supply for Electricity Distribution*  
**Liza TROSHKA\* (1), Steve QUINN (1), Nigel TURVEY (2), Furong LI (2)**  
 1: National Grid, United Kingdom; 2: University of Bath
- 1234** *Accelerating Replacement Of Ageing Distribution Transformers: Mapping The Landscape With EU-TRACE*  
**Miguel MARTINEZ VELÁZQUEZ (1), Ricardo HENRIQUES (2), Ondrej CERNY (2), Bruno DE WACHTER\* (3), Tomas JEZDINSKY (3)**  
 1: Institute for Research in Technology (IIT), Universidad Pontificia Comillas, Spain; 2: E.DSO, Belgium; 3: International Copper Association Europe, Belgium

- 1237** *The Lack Of A Legal Framework For Regulatory Sandboxes In Energy Markets*  
**Quentin PEIFFER\* (1,2), Victoria VANDERLINDEN (1)**  
 1: Sibelga, Belgium; 2: Université libre de Bruxelles
- 1239** *How Tariff-Based EV Flexibility Can Delay – But Not Solve – Network Loading Challenges In Northern Ireland*  
**Karen PLATT (1), Tim BUTLER (1), Andy PRICE-ALLISON\* (1), Naomi MORROW (2), Esther DUDEK (1), Fuqian ZENG (1), Emma PYM (3), Peter WELDON (3), Efrosyni THEOCHAROUS (3)**  
 1: EA Technology, Capenhurst, United Kingdom; 2: Northern Ireland Electricity Networks Limited, Belfast, Northern Ireland; 3: SYSTRA, Woking, UK
- 1259** *Identification of Energy Sharing Use Cases in the research project SKIES*  
**Louisa WASMEIER\* (1,2), Erwan TAILLANTER (1), Alexander HEYDER (1)**  
 1: FfE, Germany; 2: Universität Kassel
- 1262** *Unlocking The Flexibility Behind AI-based Energy Management Systems (EMS) For Congestion Management*  
**Trung NGUYEN\* (1), Wico MULDER (2), Erwin FOLMER (1), Sadegh SEDDIGHI (1), Carolien KATTENBELT (1), Luc NIES (3), Ronald VAN WEELE (3), Aliene VAN DER VEEN (2)**  
 1: HAN University of Applied Sciences; 2: TNO; 3: Alliander
- 1266** *End-to-End Generation Framework for Dynamic Energy and Grid Tariffs*  
**Joé WENGLER\*, Xavier LEUNG, Jonas WÄFLER, Michael AUER, Ariane KOLLER, Gunnar FUHRMANN**  
 ewz, Switzerland
- 1268** *From Setup Towards a Functional Local Flexibility Market*  
**Dan TELÉN\* (1), Pirjo HEINE (1), Jukka RINTA-LUOMA (2), Sonja NURMIAINEN (2), Suvu PELTOKETO (2)**  
 1: Helen Electricity Network Ltd., Finland; 2: Fingrid Oyj, Finland
- 1302** *Analysis of the Alignment Between Low-Voltage Network Hosting Capacity and Regulatory Constraints for Prosumers: Case Study in Federation of Bosnia and Herzegovina*  
**Marin MAJSTOROVIĆ\*, Drago BAGO, Sonja SUŠAC, Mia PREVIŠIĆ, Ivan ŠIMOVIĆ**  
 JP „Elektroprivreda HZ HB“ d.d. Mostar, Bosnia and Herzegovina
- 1308** *Estimating the Energy Use of Public EV Charging Infrastructures*  
**Helena OLSSON, Thomas CHAVERONDIER\*, Thibaut BUFFARD**  
 Enedis, France

- 1349** *Strategies for BESS Deployment Aligning Market Solutions and Regulatory Frameworks with Grid Needs*  
**Mansoureh ZANGIABADI\***  
Northern Powergrid, United Kingdom
- 1362** *Price Signals and Carbon Emissions: Why EV Charging is Cleaner Than Expected*  
**Julian Marius MITTAG\*, Leonardo FERHATI, Mattia SECCHI, Charalampos ZIRAS, Mattia MARINELLI**  
Technical University of Denmark, Denmark
- 1366** *Distributed Energy Resource Remuneration For Power System Resilience Enhancement*  
**Xavier WEISS\* (1), Lars NORDSTRÖM (1), Patrik HILBER (1), Arne BERLIN (2)**  
1: KTH, Royal Institute of Technology, Sweden; 2: Vattenfall Eldistribution AB, Sweden
- 1402** *Towards a New Era of Data Acquisition: Belgian Railway Expertise and Perspectives for Power Distribution Networks*  
**Alain GRISVAL (1), Numa COUNIOT (2), Thomas LAPORTE\* (3)**  
1: OMEXOM, France; 2: AXIANS, Belgique; 3: Hylight, France
- 1422** *Comparison of Different Dynamic Network Tariffs for Economically Operating Battery Energy Storage Systems in Distribution Grids*  
**Frederik GIELNIK\*, Victor WEISE, Olga KINAS, Michael SURIYAH, Thomas LEIBFRIED**  
Karlsruhe Institute of Technology, Germany
- 1424** *Assessment of Baseline Methods for DSO Flexibility Markets: Quantitative Evidence From the UK*  
**Jake VERMA\*, I. A. Grant WILSON, Daniel L. DONALDSON**  
University of Birmingham, United Kingdom
- 1425** *A Unified Grid-State Signal for Activating Household Flexibility Under Real German System Conditions*  
**Antonia WEBER\* (1,2), Florian DINGER (2), Dominik SCHLIPF (2), Frank TRUCKENMÜLLER (1), Gernot SCHULLERUS (1)**  
1: Reutlingen University, Germany; 2: TransnetBW GmbH, Germany
- 1443** *Learning from Europe's Local Flexibility Markets: Design Options and Key Success Features*  
**Kris KESSELS\*, Janka VANSCHOENWINKEL, Anibal SANJAB, Wicak ANANDUTA, Helena GERARD**  
VITO/EnergyVille, Belgium

- 1452** *Managing EV Charging and Renewables under Limited LV Grid Capacity: A Regulatory Perspective*  
**Stephan CEJKA\***, **Franz ZEILINGER**  
 Siemens AG Austria
- 1458** *GeoDescriber x GeoLLM: Let The Energy Data Speak*  
**Axel DECLERCQ\* (1)**, **Léon LIM (1)**, **Eric LAVERGNE (2)**, **Lydia OULD OUALI (2)**, **Benoît GROSSIN (2)**  
 1: Enedis, France; 2: EDF R&D, France
- 1463** *Fairness Quantification of Congestion Management Measures in Distribution Systems Based on Customer Impacts*  
**Anna-Lena STEEN\***, **Finn NUSSBAUM**, **Payam TEIMOURZADEH BABOLI**, **Christian BECKER**  
 Institute of Electrical Power and Energy Technology, Hamburg University of Technology (TUHH), Germany
- 1465** *Dynamic Operating Envelope Grid Prequalification for Sequentially Coordinated Flexibility Markets*  
**Wicak ANANDUTA\***, **Anibal SANJAB**  
 VITO & Energyville, Belgium
- 1477** *PyECOM Frontend – Assessment of Algorithms for Energy Communities*  
**Larissa MONTEFUSCO (1,4)**, **Victoria DEICHMANN (1,4)**, **Diogo REIS (1,2)**, **Eduardo GOMES (3,4)**, **Diogo FERREIRA (1,4)**, **Lucas PEREIRA (3,4)**, **Hugo MORAIS\* (1,4)**  
 1: INESC ID; 2: U. Madeira, Portugal; 3: ITI – LarSys; 4: IST, Portugal
- 1505** *Investigation of Aggregated Flexibility Potentials of Electric Vehicles Based on Energy and Power Boundaries*  
**Andreas BONG\***, **Julian BIGALKE**, **Philip KVESIC**, **Andreas ULBIG**  
 IAEW at RWTH Aachen University, Germany
- 1522** *Modelling of Flexibility Potentials of Residential Heat Pumps*  
**Julian BIGALKE\***, **Andreas BONG**, **Andreas ULBIG**  
 IAEW at RWTH Aachen University, Germany
- 1523** *Machine-Readable Network Tariffs as Enablers of Flexibility and New Market Models in Future Distribution Grids*  
**Niklas THIDEVALL\***, **Eddie OLSSON**, **Mattias ESBJÖRNSSON**  
 RISE – Research Institutes of Sweden

- 1531** *PV Hosting Capacity Assessment with Traditional Solutions and Beyond: A Brazilian Case Study*  
**Iuri L. Q. M. SILVA (1), Fillipe M. de VASCONCELOS (1), Leandro T. MARQUES (1), Vinicius C. MORO (1), Leonardo V. BONATTO\* (2), Marcos J. RIDER (3)**  
1: Federal University of Mato Grosso, Brazil; 2: École Polytechnique, France; 3: University of Campinas, Brazil
- 1538** *Fairness For Distribution Network Operations and Planning*  
**Pedro CARVALHO\* (1), Zijie LIU (1,2), Md. Umar HASHMI (1,2), Dirk VAN HERTEM (1,2)**  
1: KU Leuven, Leuven, Belgium; 2: EnergyVille, Genk, Belgium
- 1541** *Peer-Relative Smart-Meter KPIs For Meter Quality Validation And Flexibility Tariffs*  
**Gideon MBIYDZENYUY\* (1), Saleh JAVADI (2)**  
1: University of Borås, Sweden; 2: Blekinge Institute of Technology
- 1549** *Battery Bidding Strategies under Extreme Price Events: A Comparative Study of DRL Approaches Using Quantile-Spike Forecasting*  
**Dong Seok KIM\*, Kang Hyeok HEO, Seung Wan KIM**  
Korea Institute of Energy Technology, Republic of South Korea