TECHNICAL PROGRAM

2022 IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT-Europe)

October 10-12, 2022

Novi Sad, Serbia

Monday – October 10th, 2022

7.00-19.00 - Registration

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

9.00-10.00 - Opening Ceremony

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

10.00-11.00 - Plenary Speaker 1

Prof. Frede Blaabjerg, Aalborg University, Denmark
Power Electronics Technology – Quo Vadis

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

11.00-13.30 - Super Session 1: Stability, Dynamics, and Control of Emerging Renewable-Rich Power Systems

Moderator: Dr. Mehdi Ghazavi Dozein, University of Melbourne, Australia

Speakers

- Dr. Thomas Overbye, University of Texas A&M, USA
  Creation and Visualization of Large-Scale Synthetic Electric Grids for Stability Studies with High Amounts of Renewable Generation
- Dr. Rick Wallace Kenyon, encoord Inc., US
  Improving System Level Frequency Response with Non-Linear Droop Grid-Forming Inverter Control
- Dr. Mehdi Ghazavi Dozein, University of Melbourne, Australia
  Stability, dynamics, and control of emerging renewable-rich power systems
- Dr. Costas Vournas, IEEE European Public Policy Committee, Greece
  Voltage stability support using distributed resources
- Dr. Jochen Cremer, Delft University of Technology, Netherlands
  Transition to Digitalized Paradigms for Security Control
- Dr. Panagiotis Papadopoulos, University of Strathclyde, UK
  Changing power system dynamics and the use of machine learning for fast and informative stability assessment
- Dr. Vinícius Albernaz Lacerda Freitas, Polytechnic University of Catalonia, Spain
  Challenges, models and solutions for converter-dominated and low-inertia power systems

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Location: Novi Sad Fair, Congress Centre Master – Room 1

11.00-12.15 - Paper session 1: Hybrid power systems and microgrids (Part I)

Session Chair: Dr. Elvisa Bećirović, Public Power Utility Elektroprivreda, Bosnia and Herzegovina

Estimation of Harmonics in Partly Monitored Residential Distribution Networks with Unknown Parameters and Topology
Pablo Rodríguez-Pajarón, Araceli Hernandez, Jovica V. Milanovic

Sharing frequency containment reserves with HVDC systems
Abhimanyu Kaushal, Hakan Ergun, Dirk Van Hertem

Evaluation of the use of short-circuit ratio as a system strength indicator in converter-dominated power systems
Oscar Damanik, Özgür Can Sakinci, Goran Grdenić, Jef Beerten

AC System Restoration Using Embedded MT-HVDC
Hassan Alhomsi, Franz Linke, Dirk Westermann

Location: Novi Sad Fair, Congress Centre Master – Room 2

11.00-12.15 - Paper session 2: Data analytics, machine learning, and artificial intelligence in smart grids (Part I)

Session Chair: Dr. Boris Dumnic, University of Novi Sad, Serbia

Prediction of Cascading Failures and Simultaneous Learning of Functional Connectivity in Power System
Tabia Ahmad, Panagiotis N Papadopoulos

Application of Machine Learning to Oscillation Detection using PMU Data based on Prony Analysis
Taif Mohamed, Mladen Kezunovic, Zoran Obradovic, Yi Hu, Zheyuan Cheng

A Comparative Analysis of Techniques For Real-Time Transient Stability Assessment
Umbereen Bano Sayyeda, Mehrdad Ghandhari, Robert Eriksson

Federated Learning Enabled Prediction of Energy Consumption in Transactive Energy Communities
Nuno Mendes, Pedro Moura, Jerome Mendes, Rodrigo Salles, Javad Mohammadi

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Location: Novi Sad Fair, Congress Centre Master – Room 3

11.00-12.15 - Paper session 3: Computer modelling and simulation advances (Part I)

Session Chair: Dr. Goran Švenda, University of Novi Sad, Serbia

Linearised Optimal Power Flow Problem Solution using Dantzig - Wolfe decomposition
Giacomo Bastianel, Hakan Ergun, Dirk Van Hertem

Open Data Based Model of the Dutch High-Voltage Power System
Wouter Zomerdijk, Digvijay Gusain, Peter Palensky, Milos Cvetkovic

A Quasi-Analytic Solution for Harmonic Power Flow Analysis of a Full Bridge Rectifier
Christoph Szymczyk, Gerd Bumiller

Cross-sectoral Provision of Ancillary Services in coupled Electricity and Gas Sectors on a Real-Time Simulator
Elisabeth Feldhoff, Tom Duphorn, Steffen Schlegel, Dirk Westermann

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Location: Novi Sad Fair, Congress Centre Master – Room 4

11.00-12.00 - Invited Speaker 1

Dr. Michael Murphy, Munster Technological University, Ireland

Open-source decision support tools for decarbonizing energy systems through demand response: Demonstrations and sample case studies in Europe

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Location: Novi Sad Fair, Congress Centre Master – Room 1

12.15-13.30 - Paper session 4: Cyber-physical and cybersecurity in smart grids (Part I)

Session Chair: Dr. Bane Popadic, University of Novi Sad, Serbia

Towards A Massive Open Online Course for Cybersecurity in Smart Grids – A Roadmap Strategy
Bahaa Eltahawy, Maria Valliou, Jirapa Kamsamrong, Andrejs Romanovs, Tero Vartiainen, Mike Mekkanen

GridShield: A Robust Fall-Back Control Mechanism for Congestion Management in Distribution Grids
Felix Tangerding, Ivo Varenhorst, Gerwin Hoogsteen, Marco Gerards, Johann Hurink

Hybrid Data-Driven Physics-Based Model Framework Implementation: Towards a Secure Cyber-Physical Operation of the Smart Grid
Valeria Vega Martinez, Austin Cooper, Brandon Vera, Nader Aljohani, Arturo Bretas

A New Deep Learning-Based Strategy for Launching Timely DoS Attacks in PMU-Based Cyber-Physical Power Systems
Tohid Behdadnia, Geert Deconinck

Location: Novi Sad Fair, Congress Centre Master – Room 2

12.15-13.30 - Paper session 5: Integration of variable renewable energy and distributed energy resources (Part I)

Session Chair: Michael Murphy, Munster Technological University, Ireland

Quasi-Stationary Implementation of Virtual Admittance Controller for Voltage Support from Distributed Generation
Dionysios Moutevelis, Fredrik Gothner, Javier Roldan Perez, Milan Prodanovic

An extended optimization model for decentral multi-energy systems including cold district heating for the intergration of renewable heating and cooling
Malte Drögemüller, Nils Körber, Paul Maximilian Röhrig, Andreas Ulbig

Coordinated PI-based frequency deviation control of isolated hybrid microgrid: An online multi-agent tuning approach via reinforcement learning
Komeil Nosrati, Vjatseslav Skiparev, Aleksei Tepljakov, Eduard Petlenkov, Yoash Levron, Juri Belikov

Minimization of Variable Renewable Energy Curtailment in an Islanded System using Power-to-Gas Technology: a Reunion Island Case Study
Corey Duncan, Agnes Francois, Robin Roche, Marie-Cecile Pera, Samir Jemei

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Location: Novi Sad Fair, Congress Centre Master – Room 3

12.15-13.30 - Paper session 6: Integration and operation power electronics-interfaced resources (Part I)

Session Chair: Dr. Ivan Todorović, University of Novi Sad, Serbia

EMT three-phase VSC grid-connected converter reactive power control using H-infinity LMI MIMO approach
Huang-Trung Ngo, Elkhatib Kamal, Bogdan Marinescu

On the Distance Protection of Power Grids dominated by Grid-forming Inverters
Nathan Baeckeland, D. Venkatramanan, Sairaj Dhople, Michael Kleemann

A Simplified Microgrid Architecture with Reduced Number of Measurement Units
Prashant Pant, Federico Ibanez, Petr Vorobev, Thomas Hamacher, Vedran Peric

Small Signal Study of Grid-forming Converters and Impact of Different Control Structures and Parameters
Luke Benedetti, Panagiotis Papadopoulos, Agustí Egea-Álvarez

Location: Novi Sad Fair, Congress Centre Master – Room 4

12.15-13.30- Industrial Plenary 1

Wayne Bishop, Vice President, IEEE Power and Energy Society, Senior Director, Quanta Technology, USA
Trends and Transformation of the Electric Power Industry

Location: Novi Sad Fair, Congress Centre Master

13.30-14.30 - Lunch

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

14.30-15.30 - Plenary Speaker 2

Prof. Alex Stankovic, SLAC National Accelerator Laboratory, USA
The Saga of Electric Energy Networks - From Ode to Lament and Back

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Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

15.30-17.30 - WiP Panel Session 1: Taking the Most of IEEE and CIGRE Memberships

Moderator: Dr. Jelena Ponocko, The University of Manchester, UK

Panelists

- Dr. Jiawei Wang, Technical University of Denmark (DTU), Denmark
- Dr. Jelena Lukić, Institute Nikola Tesla, Serbia
- Dr. Jasna Dragosavac, Institute Nikola Tesla and University of Novi Sad, Serbia
- Dr. Elvisa Bećirović, Electric Power Industry of Bosnia and Herzegovina, Bosnia and Herzegovina
- Dr. Panagiotis Papadopoulos, University of Strathclyde, UK

Location: Novi Sad Fair, Congress Centre Master – Room 5

15.30-17.30 - Poster session 1

Session Chair: Dr. Amirhossein Sajadi, University of Colorado Boulder, USA

A Review on Implementation of Vehicle to Everything (V2X): Benefits, Barriers and Measures
Rahmat Khezri, David Steen, Le Anh Tuan

Voltage-Based Heat Pump Recognition in Low Voltage Distribution Grids with Convolutional Neural Networks
Henning Schlachter, Stefan Geißendörfer, Karsten von Maydell, Carsten Agert

Analytic Approach to Model Residential Demand Profiles at Low-Voltage Distribution Transformers
Xiang Li

Assessing the feasibility of methods to enhance the security of supply of critical infrastructure
Juha Haakana, Julius Vilppo, Otto Räisänen, Jouni Haapaniemi, Jukka Lassila

Asynchronous Implementation of a Region-Based Distributed Optimal Power Flow Algorithm
Alyssia Dong, Roman Le Goff Latimier, Hamid Ben Ahmed

Potential Flexible Operation's Assessment of a Non-Residential Building Through a Novel Tool
David Cano-Tirado, Tuğçin Kırant-Mitić, Maximilian Forchheim, Marcel Modemann, Markus Zdrallek, Daniel Kühler

Real-Time Approach for Managing Power Network by Shifting Electricity Consumers Demand
Catia Silva, Zita Vale, Pedro Faria, Bruno Canizes

Simulation and analysis of a congestion management using an incentive-based preventive load management and load-side flexibilities in the distribution grid
Alexander Vanselow

Deep Reinforcement Learning for Autonomous Control of Low Voltage Grids with Focus On Grid Stability In Future Power Grids
Lars Quakernack, Michael Kelker, Jens Haubrock

Evaluate the impact of network tariffs on the Swiss energy transition. A fair cost distribution or a driver to reduce expensive network upgrades?
Yamshid Farhat, Gabriel M. Lipsa, Torsten Braun

An ADMM-based Distributed Energy Management System for Microgrids
Cindy Paola Guzmán Lascano, Juan Camilo Lopez Amezquita, Gabriela Beatriz Sanchez Ponce, Lucas Zenichi Terada, Marcos Julio Rider Flores, Luiz Carlos Pereira da Silva

A Modified Version of the IEEE 39-bus Test System for the Day-Ahead Market
Gioacchino Tricarico, Raju Wagle, Maria Dicorato, Giuseppe Forte, Jose Luis Rueda, Francisco Gonzalez-Longatt

Robust Bidding/Offering Strategy of a Price Maker Energy Distribution Company in Electricity Market
Amin Mansour Saatloo, Ali Notash, Mohammad Amin Mirzaei, Abbas Mehrabi, Mousa Marzband, Nauman Aslam

The Influence of Deployment of DSM on Power System Angular and Frequency Transients and Stability
Mengxuan Wang, Jovica Milanovic, Jelena Ponocko

Towards a framework for modelling market-based congestion management in distribution grids
Felix Gaumnitz

Demand Response in Smart Districts: Model Predictive Control of Building Cooling
Philipp Zwickel, Moritz Frahm, Johannes Galenzowski, Karl-Heinz Häfele, Heiko Maaß, Simon Waczowicz, Veit Hagenmeyer

Dynamic Pricing Integrated Demand Response for Multiple Energy Carriers with Deep Reinforcement Learning
Gaddafi Almannouny, Shengrong Bu, Jin Yang

Location: Novi Sad Fair, Congress Centre Master – Room 1

15.30-17.30 - Panel Session 1: Enhanced Grid Resilience by Data Sharing Between Protective and Control Systems, Operators and Significant Grid Users

Moderators: Dr. Srdjan Skok, Algebra University College, Croatia, and Dr. Alfredo Vaccaro, University of Sannio, Italy

Panelists

- Dr. Massimo La Scala, Politecnico di Bari, Bari, Italy
  Enabling Technologies for Disturbance Detection and Corrective Control in Large-scale Power Systems
- Dr. Vladimir Terzija, Skoltech, Russia
  Horizontal and Vertical Data Transfer for Smart Ancillary Services of Future Electrical Power Systems
- Dr. Fabrizio de Caro, University of Sannio, Italy
  Data Sharing Between Heterogenous Information Sources: The Enabler for Resilient Power Grids
- Dr. Sasa Djokic, The University of Edinburgh, UK
  Big-Data and NN Approaches for Modelling and Forecasting Outage and Curtailment Events of Wind Turbines in Neighbouring Wind Farms
- Dr. Srdjan Skok, Algebra University College, Croatia
  TSO-DSO Resilience Algorithms Based on IoT Data Sharing Platform

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Location: Novi Sad Fair, Congress Centre Master – Room 2

15.30-17.30 - Panel Session 2 (Cancelled)

Location: Novi Sad Fair, Congress Centre Master – Room 3

15.30-17.30 - Paper session 7: Automation of active distribution systems

Session Chair: Dr. Vinícius Albernaz Lacerda Freitas, Polytechnic University of Catalonia, Spain

Review of statistics based coping mechanisms for Smart Meter Missing Data in Distribution Systems
Jiaojiao Wu, Arpan Koirala, Dirk Van Hertem

Cross-functional Integration of Grid Operation with Predictive Asset Management
Jernej Zupančič, Mitja Antončič, Tomi Medved, Miha Bečan, Andrej F. Gubina, Uroš Kerin

Operationally-Safe Peer-to-Peer Energy Trading in Distribution Grids: A Game-Theoretic Market-Clearing Mechanism
Giuseppe Belgioioso, Wicak Ananduta, Sergio Grammatico, Carlos Ocampo-Martinez

Fault Ride Through Control of Multiport Converter for Distribution Grids
Martí Domínguez Hernàndez, Oriol Esquius Mas, Marc Cheah Mañe, Eduardo Prieto Araujo, Oriol Gomis Bellmunt

Application of graph theory as a tool for reconfiguration of the distribution network
Artem Kashtanov, Eric Glende, Martin Wolter

Guaranteeing the Provision of Primary Frequency Control Services by Distributed Generation
Oluwaseun Oladimeji, Lukas Sigrist, Alvaro Ortega

Location: Novi Sad Fair, Congress Centre Master – Room 4

15.30-17.30 - Paper session 8: Low-inertia and inertia-free power systems

Session Chair: Dr. Mazher Syed, University of Strathclyde, UK

Reinforcement Learning based MIMO Controller for Virtual Inertia Control in Isolated Microgrids
Vjatseslav Skiparev, Juri Belikov, Eduard Petlenkov, Yoash Levron

How Inertia Reduction Affects Synchronous Generators: The Case of Synchronizing Torque
Mamadou Goundiam, Vincent Debusschere, Raphaël Caire

Estimation of Load Inertia using Ambient Measurements from Synchrophasor Technology
Marina Elenkova, Markos Asprou, Lenos Hadjidemetriou, Christos Panayiotou

Using a Grid-Forming Inverter to Stabilize a Low-Inertia Power System – Maui Hawaiian Island
Rick Wallace Kenyon, Amirhossein Sajadi, Andy Hoke, Bri-Mathias Hodge

Simulation of electric vehicles daily charging in a low-voltage network to reduce grid reinforcement needs
Chloe Fournely, Andrej F. Gubina, Edin Lakić

Harmonic Emission of EV Fast Charging Station under Different Supply- and Operating Conditions
Tim Slangen, Vladimir Ćuk, Erik de Jong, Sjef Cobben

Location: Novi Sad Fair, Congress Centre Master – Room 1

17.30-19.30 - Panel Session 3: Research Capabilities and Thrusts of the U.S. Department of Energy's National Renewable Energy Laboratory (NREL)

Moderator: Dr. Annabelle Pratt, NREL, USA

Panelists

- Dr. Annabelle Pratt, NREL, USA
  NREL's laboratory evaluation platforms for grid controls and technologies
- Dr. Murali Baggu, NREL, USA
  Capabilities and initiatives at the National Renewable Energy Laboratory
- Dr. Srijib Mukherjee, ORNL, USA
  Applications in Advanced Power System Protection & Grid Emulation
- Ms. Ivana Krstic, Schneider Electric, Serbia
  Innovating together to enable grids of the future

Location: Novi Sad Fair, Congress Centre Master – Room 2

17.30-19.30 - Panel Session 4 (Cancelled)

Location: Novi Sad Fair, Congress Centre Master – Room 3

17.30-19.30 - Paper session 9: Grid resilience management and enhancement

Session Chair: Dr. Alex Stankovic, SLAC National Accelerator Laboratory, USA

Stochastic Dynamic Thermal Rating of Transmission Lines in Heatwave Events
Ali Arab, Amin Khodaei, Suresh Khator

A Non-Convex and Non-Iterative Approach for Fast Vulnerability Analysis of Smart Grids
Pengxiang Liu

Assessing Power System Resilience to Floods: A Geo-Referenced Statistical Model for Substation Inundation Failures
Wenzhu Li, Eduardo A. Martínez Ceseña, Lee S. Cunningham, Mathaios Panteli, David M. Schultz, Sarah Mander, Chin Kim Gan, Pierluigi Mancarella

Electric Power Industry Challenges due to Increasing Shares of Inverter-Based Resources in Power Systems
Amirhossein Sajadi, Jo Ann Rañola, Rick Wallace Kenyon, Bri-Mathias Hodge, Barry Mather

Routing and Dispatching of Mobile Storage Units for a Resilient Response to Severe Weather Events in Low Voltage Smart Grids
Laiz Souto, Philip Taylor, Maria Pregnolato

Optimal Coordination of Multiple System Protection Schemes against Critical Overload Conditions
Daniel Baltensperger, Kjetil Uhlen

Location: Novi Sad Fair, Congress Centre Master – Room 4

17.30-19.30 - Paper session 10: Integration of variable renewable energy and distributed energy resources (Part II)

Session Chair: Dr. Nikos Hatziargyriou, National Technical University of Athens, Greece

Optimization of energy communities in the Italian incentive system
Marta Stentati, Simone Paoletti, Antonio Vicino

Design and Feasibility Study of Hydrogen-Based Hybrid Microgrids for LV Residential Services
Fahad Ali Sarwar, Stéphane Latil, Chenghong Gu, Ignacio Hernando-Gil, Ionel VECHIU

Impact of distributed energy resources on power system resilience against earthquakes
Jihad Guenaou, Pierre Henneaux, Daniel Kirschen

An Integrated Frequency-Voltage Controller for Next-Generation Power Systems
Etinosa Ekomwenrenren, John Simpson-Porco, Zhiyuan Tang, Evangelos Farantatos, Mahendra Patel, Hossein Hooshyar, Aboutaleb Haddadi

Impact of Active Distribution Networks on Transient Stability
Ifigeneia Lamprianidou, Dimitrios Tzelepis, Anastastios Oulis Rousis, Panagiotis Papadopoulos

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Location: Novi Sad Fair, Congress Centre Master – Room 5

17.30-19.30 - Paper session 11: Future power systems

Session Chair: Dr. Costas Vournas, IEEE European Public Policy Committee, Greece

Artificial Intelligence-Based Controller for Grid-Forming Inverter-Based Generators
Hassan Issa, Vincent Debusschere, Lauric Garbuio, Philippe Lalanda, Nouredine Hadjsaid

An Intelligent Big Data Analytics Method for Two-Dimensional Non-Residential Building Energy Forecasting
Cristina Nichiforov, Miltiadis Alamaniotis

Scalability and Reliability Analysis of a Novel Cloud Platform for TSO-DSO Information and Data Exchange
Mubashar Amjad, Gareth Taylor, Chun Sing Lai, Zhengwen Huang, Maozhen Li

The impact of local electricity markets on the operation and development of the distribution networks
Matej Pečjak, Jernej Zupančič, Chloé Fournely, Jan Jeriha, Andrej Gubina, Boštjan Blažič

Multivariate Cross-Correlated Reliability Modeling of Wind Turbines using Pair-Copula Functions
Payam Teimourzadeh Baboli, Amin Raeiszadeh, Michael Brand, Sebastian Lehnhoff

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19.30-21.00 - Networking and reception

Tuesday – October 11th, 2022

7.00-19.00 - Registration

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

8.30-9.30 - Plenary Speaker 3

Prof. Nikos Hatziargyriou, National Technical University of Athens, Greece
The EU R&I priorities for Smart Energy Systems

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

9.30-12.00 - Super Session 2: Resilience and Reliability of Electricity and Gas Networks Under Extreme Events

Moderator: Dr. Rick Wallace Kenyon, encoord Inc., US

Speakers

- Dr. Srijib Mukherjee, Oak Ridge National Laboratory, USA
  Reliability and Resilience of Energy Systems under Extreme Weather Events
- Dr. Kwabena Pambour, encoord GmbH, Germany
  The need for integrated planning of electricity and natural gas networks
- Dr. Dave Schoenwald, Sandia National Laboratory, USA
  Dynamic Resilience Indicators
- Dr. Mehdi Ghazavi Dozein, University of Melbourne, Australia
  Fast frequency response from inverter-based technologies: system resilience benefits and challenges
- Dr. Fangxing Li, University of Tennessee, USA
  Modeling summer droughts for grid resilience study
- Dr. Yilu Liu, University of Tennessee, USA
  Grid Strength for high IBR systems

Location: Novi Sad Fair, Congress Centre Master – Room 1

9.30-10.45 - Paper session 12: Hybrid power systems and microgrids (Part II)

Session Chair: Dr. Vinícius Albernaz Lacerda Freitas, Polytechnic University of Catalonia, Spain

Drivers and Barriers to Deploy Microgrid in Sweden
Oskar Nordlander Hurtig, Matilda Arvidsson, Max Hessman, Katriine Koit, Tim Lindberg, Peiyuan Chen, Kristoffer Fürst

Virtual Oscillator based Hierarchical Control Strategy for Multi-mode Operation of Microgrids
Trung Tran

Comparative Planning of LVAC for Microgrid Topologies With PV-Storage in Rural Areas – Cases Study in Cambodia
Chhith Chhlonh, Marie-Cécile Alvarez-Herault, Vannak Vai, Bertrand Raison

Impact of HVDC Fault Ride-Through and Continuous Reactive Current Support on Transient Stability in Meshed AC/DC Transmission Grids
Xiong Xiao, Soham Choudhury, Martin Coumont, Jutta Hanson

Location: Novi Sad Fair, Congress Centre Master – Room 2

9.30-10.45 - Paper session 13: Advances in ADMS, DERMS, EMS, and OMS solutions

Session Chair: Dr. Ignacio Hernando Gil, ESTIA Institute of Technology (University of Bordeaux), France

A Novel Two-Stage Tractable Approach to Multi-Period AC Optimal Power Flow in Smart Grids
Muhammad Usman, Florin Capitanescu

Assistance System to Consider Dynamic Phenomena for Secure System Operation
Tom Sennewald, Xinya Song, Dirk Westermann

Fair Blackout Rotation for Distribution Systems under Extreme Weather Events
Hongbo Sun, Shoichi Kitamura, Daniel Nikovski

Utility DERMS and DER Aggregators: An Ideal Case for Tomorrow's DSO
Luka Strezoski

Location: Novi Sad Fair, Congress Centre Master – Room 3

9.30-10.45 - Paper session 14: Computer modelling and simulation advances (Part II)

Session Chair: Dr. Ivan Todorović, University of Novi Sad, Serbia

Modelling and Simulation of Power Systems with Grid-Connected Converters in OpenModelica
Lluc Llerins, Vinicius Lacerda, Adrien Guironnet, Eduardo Prieto-Araujo, Quentin Cossart, Oriol Gomis-Bellmunt

A Hardware-In-The-Loop Configuration for Real-Time Power System Monitoring
Orestis Darmis, George Korres, Dimitrios Lagos, Nikos Hatziargyriou

An Optimization-based Approach for Automated Generation of Residential Low-Voltage Grid Models Using Open Data and Open Source Software
Hüseyin K. Çakmak, Luc Janecke, Moritz Weber, Veit Hagenmeyer

Optimal Microgrid Sizing using Gradient-based Algorithms with Automatic Differentiation
Evelise de Godoy Antunes, Pierre Haessig, Chaoyun Wang, Roberto Chouhy Leborgne

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Location: Novi Sad Fair, Congress Centre Master – Room 4

9.30-10.30 - Invited Speaker 2

Dr. Murali Baggu, National Renewable Energy Laboratory (NREL), USA
Analysis and technology needs for getting to 100% Renewable Energy

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Location: Novi Sad Fair, Congress Centre Master – Room 1

10.45-12.00 - Paper session 15: Cyber-physical and cybersecurity in smart grids (Part II)

Session Chair: Dr. Barry Hayes, University College Cork, Ireland

Attack Detection and Measurement Correction in Distribution Systems with Non-Synchronized Measurements
Abdullah Shah, Ali Al-Awami, Wessam Mesbah

Two-Stage Optimization Framework for Detecting and Correcting Parameter Cyber-Attacks in Power System State Estimation
Nader Aljohan, Arturo Bretas

Blockchain Support For Time-Critical Self-Healing In Smart Distribution Grids
Befekadu Gezaheng Gebraselase, Charles Mawutor Adrah, Tesfaye Amare, Bjarne Emil Helvik, Poul Einar Heegaard

Physical Verification of Data-Driven Cyberattack Detector in Power System: An MTD Approach
Wangkun Xu, Imad Jaimoukha, Fei Teng

Location: Novi Sad Fair, Congress Centre Master – Room 2

10.45-12.00 - Paper session 16: Demand response and demand side management (Part I)

Session Chair: Dr. Tuan Le, Chalmers University of Technology, Sweden

The Effect of Demand and RES Uncertainties on Contributions of Loads to Flows
Feifan Niu, Jelena Ponocko

System Benefits of Residential Heat Storage for Electrified Heating Sector in the United Kingdom
Marko Aunedi, Goran Strbac

A Bespoke Frequency Response Service suitable for delivery by Flywheel Energy Storage Systems
Andrew Hutchinson, Daniel Gladwin

Aggregation of Time-Dependent Flexibility in Cellular Organized Distribution Grids
Sina Steinle, David Littig, Steven de Jongh, Frederik Gielnik, Michael R. Suriyah, Thomas Leibfried

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Location: Novi Sad Fair, Congress Centre Master – Room 3

10.45-12.00 - Paper session 17: Integration and operation power electronics-interfaced resources (Part II)

Session Chair: Dr. Alexandros Paspatis, National Technical University of Athens, Greece

Protection Security Assessment with Guiding Optimization Criteria based on Stability Indices
Georg Janick Meyer, Johann Jaeger

Improved battery storage systems modeling for predictive energy management applications
Ricardo Silva, Clara Gouveia, Leonel Carvalho, Jorge Pereira

Voltage Support Based Peer-to-Peer Energy Trading Scheme with Reactive Power Compensation
Tristan Kleinjan, Jin Yang

Reinforcement Learning-assisted Controller Parameterization based on Improving Oscillatory Stability in Converter-Dominant Power System
Hui Cai, Xinya Song, Teng Jiang, Uwe Raedel, Steffen Schlegel, Dirk Westermann

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Location: Novi Sad Fair, Congress Centre Master – Room 4

10.45-11.45 - Industrial Plenary 2

Alexis Grenon, Senior Vice President, Schneider Electric, France
Trends and Transformation of the Electric Power Industry

Location: Novi Sad Fair, Congress Centre Master

12.00-13.00- Lunch

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

13.00-14.00 - Plenary Speaker 4

Prof. Thomas Overbye, Texas A&M University (TAMU), USA
Smart Grid Visual Storytelling: Past, Present, and Future

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

14.00-16.00 - WiP Panel Session 2: Multidisciplinary Skill Needs as a Response to Global Challenges in Power and Energy

Moderator: Dr. Jelena Ponocko, The University of Manchester, UK

Panelists

- Ms. Felicidade Pemba Kinzo Garcia, Deloitte, Angola
- Dr. Lina Bertling Tjernberg, KTH Royal Institute of Technology, Sweden
- Dr. Ivana Krstic, Product Marketing Manager, Serbia
- Dr. Yilu Liu, University of Tennessee, USA
- Dr. Annabelle Pratt, National Renewable Energy Laboratory (NREL), USA
- Dr. Marija Zima-Bockarjova, ABB, Switzerland

Location: Novi Sad Fair, Congress Centre Master – Room 5

14.00-16.00 - Poster session 2

Session Chair: Dr. Amirhossein Sajadi, University of Colorado Boulder, USA

Quantification of the Shared Energy in Energy Communities
Vladimir Gjorgievski, Bodan Velkovski, Snezana Cundeva

A Scheme for Resource Sharing in Distributed DC Microgrids with Minimal System Losses
Saqib Iqbal, Kamyar Mehran, Mashood Nasir

Power Management Strategies for Vanadium Redox Flow Battery and Supercapacitors in Hybrid Energy Storage Systems
Muhammad Hamza Ali, Dario Slaifstein, Federico Martin Ibanez, Christina Zugschwert, Mikhail Pugach

Fairness of Sharing Renewable Energy Between Prosumers
Vladimir Gjorgievski, Bodan Velkovski, Snezana Cundeva

Single-Stage and Two-Stage LSTM-Based Methods for Forecasting Electricity Demands and Prices
Shuyang Zhu, Mingzhe Zou, Sasa Djokic, Jagadeesh Gunda, Igor Papic

Multi-threaded Power Flow Calculation for Unbalanced Networks
Nikola Vojnović, Jovana Vidaković, Milan Vidaković

Power Transformer Neutral Point Grounding Methods: Analysis of Fault Characteristics
Vahid Helać, Senad Smaka, Selma Grebovic, Nermin Oprašić

Optimal offering strategy for an aggregator across multiple products of European day-ahead market
Yogesh Pipada Sunil Kumar, S. Ali Pourmousavi, Markus Wagner, Jon A. R. Liisberg

Regulatory Framework for Residential Aggregators: Solutions for Low-Resolution Metering
Louis Brouyaux, Sandro Iacovella, Pol Olivella-Rosell, Sylvain Quoilin

Voltage Regulation Under Unbalanced Power Flow in Active Four-Wire Low Voltage Distribution Grids
Andreas Kotsonias, Markos Asprou, Lenos Hadjidemetriou, Christos Panayiotou

Demand Response Contract Management Model
Pedro Nel Ovalle, José Vuelvas, Arturo Fajardo, Carlos Correa, Fredy Ruiz

Current-limiting control of interlinking converter to maintain power balance in hybrid microgrids
Panagiotis Skentzos, George C. Konstantopoulos

A Data-Driven Algorithm for Short-Term Prediction of Over-Voltage and Under-Voltage Events in Distribution Grids
Shabnam Ataee, Mohammad Rayati, Carlos Andrés Pena, Omid Alizadeh-Mousavi, Mokhtar Bozorg

Impact of Distributed Energy Resources Capabilities and Protections on Islanded Power System Frequency Stability
Phivos Therapontos, Charalambos A. Charalambous, Petros Aristidou

Testing a Self-tuning Predictive Speed Controller of a Synchronous Generator on a Cyber-physical Model
Yury Bulatov, Andrey Kryukov, Konstantin Suslov

Comparing the role of V2G hydrogen fuel cell and V2G electric vehicles for increased integration of VRE in a low carbon neighbourhood
Dejene Assefa Hagos

On the role of demand response and key CCHP technologies for increased integration of variable renewable energy into a microgrid
Dejene Assefa Hagos, Vojislav Novakovic

Location: Novi Sad Fair, Congress Centre Master – Room 1

14.00-16.00 - Panel Session 5: Powering System flexibility in the Future through Renewable, H2020 POSYTYF project

Moderator: Dr. Bogdan Marinescu, Ecole Centrale Nantes, France

Panelists

- Dr. Bogdan Marinescu, Ecole Centrale Nantes, France
  Overview of the new Dynamic Virtual Power Plant (DVPP) concept and approach and the POSYTYF project
- Dr. Horst Schulte, HTW Berlin, Germany
  Modeling and Control of Renewable energy-based power plants for participation in DVPP
- Dr. Vinicius Lacerda, Polytechnic University of Catalonia, Spain
  Suitability of EMT and Phasor models to simulate large grids with renewable generation and power electronics
- Dr. Alvaro Ortega Manjavacas, UPC-IIT Madrid, Spain
  Simultaneous Participation of Dynamic Virtual Power Plants in Energy and Reserve Markets in Europe – A Robust Optimal Bidding Strategy

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Location: Novi Sad Fair, Congress Centre Master – Room 2

14.00-16.00 - Panel Session 6: Enabling the energy transition while maintaining power system stability

Moderator: Dr. Costas Vournas, IEEE European Public Policy Committee, Greece

Panelists

- Dr. Chavdar Ivanov, gridDigIt, Hungary
  IEEE/EPPC recommendations on power system stability and Security
- Mr. Said Cosic, gridDigIt, Hungary
  Power system modelling and information exchange for enhancing stability
- Dr. Yannis Kabouris, SEleNe CC, Greece
  The role of Regional Coordination Centers in addressing stability challenges in the European Power System
- Ms. Bojana Mihic, TenneT TSO B.V., Netherlands
  Stability Aspects of Offshore Wind Integration
- Mr. Mario Dionisio, formerly DG Ener, European Commission
  Energy Transition and Power System Stability: challenges and opportunities

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Location: Novi Sad Fair, Congress Centre Master – Room 3

14.00-16.00 - Paper session 18: Data analytics, machine learning, and artificial intelligence in smart grids (Part II)

Session Chair: Dr. Jochen Cremer, Delft University of Technology, Netherlands

Long Term Characteristics of Ultra Low Frequency Oscillations in the Nordic Power System
Janne Seppänen, Mikko Kuivaniemi, Liisa Haarla, Matti Lehtonen

An adaptive Subgrid Identification Strategy for Future Medium Voltage Smart Grids based on Machine Learning
Frederik Puhe, Christian Rehtanz

Performance Comparison of Deep RL Algorithms for Energy Systems Optimal Scheduling
Shengren Hou, Edgar Mauricio Salazar, Pedro P. Vergara, Peter Palensky

Electric Utility Customer Segmentation from Advanced Metering System Data Using K-Shape Clustering — A Norwegian Case Study
Kari Walstad, Vijay Venu Vadlamudi

Interpretable data-driven solar power plant trading strategies
Konstantinos Parginos, Ricardo Bessa, Simon Camal, Georges Kariniotakis

Special Day Regression Model for Short-Term Load Forecasting
Zoran Janković, Slobodan Ilić, Boban Vesin, Aleksandar Selakov

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Location: Novi Sad Fair, Congress Centre Master – Room 4

14.00-16.00 - Paper session 19: Mass integration of electric vehicles

Session Chair: Dr. Aleksandar Selakov, University of Novi Sad, Serbia

Probabilistic Impact Assessment of Electric Truck Charging on a Medium Voltage Grid
Kathrin Walz, Krzysztof Rudion, Cristina-Maria Moraw, Martin Eilers

Optimal Design of Time-of-Use Tariffs using Bilevel Optimization
Ashwin Venkatraman, Gabriela Hug, Christian Schaffner, Marina Gonzalez Vaya

Optimal Electric Vehicle Charging using Real-Time Coordinated and Decentralized Cooperating Heat Pump in Community Grids
Chitchai Srithapon, Daniel Månsson

A privacy-friendly hybrid data-driven algorithm for modeling the local flexibility of the EVs
Hossein Fani, Emilio José Palacios-García, Geert Deconinck

Bottom-up quantification of energy flexibility in cluster of residential heat pump systems
Muhammad Hafeez Saeed, Hussain Syed Kazmi, Geert Deconinck

Optimized UAV Placement for Resilient Crisis Communication and Power Grid Restoration
Michael Heise, Martin Pietsch, Maximilian Bauer, Burak Yilmaz, Florian Steinke

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Location: Novi Sad Fair, Congress Centre Master – Room 1

16.00-18.00 - Panel Session 7: Pushing the Boundaries of Real-Time Simulations for Validation of Future Complex Power Systems

Moderators: Dr. Mazher Syed, University of Strathclyde, UK, and Dr. Thomas Strasser, Austrian Institute of Technology, Austria

Panelists

- Ms. Kati Sidwall, RTDS Technologies, Canada
  Shaping Future Power Systems with Real-Time Simulation
- Dr. Alexandros Paspatis, National Technical University of Athens, Greece
  Interface Algorithms for Power-Hardware-in-the-Loop Simulation: Addressing the Stability and Accuracy Constraints
- Dr. Adrien Genic, Typhoon HIL, Serbia
  Ultra High-Fidelity Hardware-in-the-Loop Simulation for Microgrids and Electrical Distribution Networks
- Mr. Zhiwang Feng, University of Strathclyde, UK
  Experiences with Next Generation Validation Methods for the Derisking of the Renewables Dominated Grids: Black Start

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Location: Novi Sad Fair, Congress Centre Master – Room 2

16.00-18.00 - Panel Session 8: Control and Optimization of Microgrids with Hybrid & Hydrogen Energy Storage Systems: Challenges and Solutions

Moderator: Dr. Ignacio Hernando Gil, ESTIA Institute of Technology (University of Bordeaux), France

Panelists

- Dr. Ignacio Hernando Gil, ESTIA Institute of Technology (University of Bordeaux), France
  Quality of Supply and Uncertainty: Risk and Reliability Implications from DERs and Hybrid Microgrids
- Dr. Milan Prodanovic, Head of Electrical Systems Unit, IMDEA Energy Institute, Madrid, Spain
  Battery storage systems for frequency and voltage support in microgrids
- Dr. Barry Hayes, University College Cork, Ireland
  Grid Integration of DER, Energy Storage, and Microgrids: An Irish Perspective
- Dr. Sasa Djokic, The University of Edinburgh, UK
  Deployment of Multi-Vector Mini-Grids in Africa: Some Results and Experiences from UK PACT RESILIENT Project
- Mr. Fahad Sarwar, H2Gremm, France
  Design and Feasibility of Hydrogen-Based Hybrid Microgrids for LV Residential Services: A French Perspective from H2GREMM
- Dr. Daniela Yassuda Yamashita, Schneider Electric, France
  Smart Architecture Enabling the Integration of Electric Vehicles to Buildings

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Location: Novi Sad Fair, Congress Centre Master – Room 3

16.00-18.00 - Paper session 20: Industry Applications (Part I)

Session Chair: Dr. Luka Strezoski, University of Novi Sad, Serbia

The Decarbonisation Perspectives: The Implementation of Carbon Capture and Storage Projects in the Oil and Gas Industry Under the Serbian Climate Change Act
Serguei Fominykh

Towards improving validation models of coordinated functions for TSOs market involvement
Predrag Vujovic, Luka Strezoski

Flexible Connection Concept and Planning Studies for its Piloting in a Transmission System
Antti Kuusela, Tuomas Rauhala, Lauri Ala-Mutka, Antti-Juhani Nikkilä, Suvi Peltoketo

Load Pattern Recognition Method for Probabilistic Short-Term Load Forecasting at Low Voltage Level
Igor Manojlović, Goran Švenda, Aleksandar Erdeljan

Overcurrent relay coordination in the presence of the uncertainties of production and consumption
Marko Obrenić, Dragana Radojčić, Predrag Vidović

Utilization of Flexibility Mechanisms in Regional Outage Planning of Transmission Systems
Suvi Peltoketo, Antti Kuusela, Antti-Juhani Nikkilä, Tuomo Mäkihannu, Tuomas Rauhala

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Location: Novi Sad Fair, Congress Centre Master – Room 4

16.00-18.00 - Paper session 21: Integration of variable renewable energy and distributed energy resources (Part III)

Session Chair: Dr. Vedran Peric, Technical University of Munich, Germany

Sustainable Off-grid Systems with Integration of Renewable Generation and Hydrogen-Fuel Cell
Yared Bekele, Getachew Biru, Lina Bertling Tjernberg

Modelling and Control of Wind Turbine and Battery Energy Storage System for Grid Integration
Omid Khoubseresht, Mohamadamin Rajabinezhad, Bahman Ahmadi, Elham Shirazi

Residential PV Hosting Capacity, Voltage Unbalance, and Power Rebalancing: An Australian Case Study
Yushan Hou, Michael Liu, Luis Ochoa

Value Stream Mapping of Stakeholder Impacts from Rising Prosumers
Soumyajit Mitra, Eduardo Alejandro Martinez Ceseña

Multi Vector Energy Demand Modelling for Predicting Low-Carbon Electrical Heat Loads
Amy Anderson, Bruce Stephen, Stephen McArthur

Local Reactive Power Control Method for Overvoltage Mitigation in Low-Voltage Grids
Marian Meyer, Andreas Ulbig

20.00-23.00 - Gala Dinner

Wednesday – October 12th, 2022

7.00-19.00 - Registration

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

8.30-9.30- Plenary Speaker 5

Dr. Dejan Milojicic, Hewlett Packard Labs, USA

Sustainability: Sustainable IT and IT for Sustainability

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

9.30-12.00 - Super Session 3: Artificial Intelligence for Active Power Distribution

Moderator: Dr. Jochen Cremer, Delft University of Technology, Netherlands

Speakers

- Mrs. Marija Markovic, University of Colorado Boulder, USA
  Increasing distribution system situational awareness through machine learning
- Dr. Fanlin Meng, University of Manchester, UK
  A privacy-preserving, distributed and real-time learning framework for smart meter big data
- Dr. Jochen Cremer, Delft University of Technology, Netherlands
  Learning distributed demand response for reliable systems
- Dr. Mladen Kezunovic, University of Texas A&M, USA
  ML/AI use in outage risk prediction and impact on active distribution networks
- Dr. Pedro Vergara Barrios, Delft University of Technology, Netherlands
  Ensuring constraints in Reinforcement Learning algorithms – How to do it?
- Dr. Laurine Duchesne, Haulogy, Belgium
  Machine learning for power systems reliability management: from recent developments to a practical application

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Location: Novi Sad Fair, Congress Centre Master – Room 1

9.30-10.45 - Paper session 22: Hybrid power systems and microgrids (Part III)

Session Chair: Dr. Geert Deconinck, Katholieke Universiteit Leuven (KU Leuven), Belgium

Small-Signal Analysis of a Microgrid with Secondary Control Including the Dynamics of Primary Control and Communication Delays
Diana Patricia Morán Río, Javier Roldán-Pérez, Milan Prodanović, Aurelio García-Cerrada

AC Multi-Stage Transmission Network Expansion Planning considering a Multi-Voltage Approach
Patricio Cajas, Santiago Torres, José Chillogalli, Harold Chamorro, Vijay Sood, Rubén Romero

Detection and Properties of Voltage Impasse Regions in the Presence of Nonlinear Static Loads
Marina Oluic, María Ángeles Antolín Liñán, Bertil Berggren, Mehrdad Ghandhari, Luis Rouco

Challenges in the representation of digital applications in SGAM: Overview and solutions
Jose Angel Leiva Vilaplana, Konrad Sundsgaard, Gabriel Miguel Gomes Guerreiro, Guangya Yang

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Location: Novi Sad Fair, Congress Centre Master – Room 2

9.30-10.45 - Paper session 23: Communication and real-time connectivity in smart grid

Session Chair: Dr. Aleksandar Selakov, University of Novi Sad, Serbia

Initial Results with Real-Time Testing of Smart-WAMS for Power Oscillation Monitoring
Lalit Kumar

Supporting the Requirements-Based Selection of Suitable Communication Protocols in Smart Grids
Sebastian Hanna, Sebastian Rohjans, Philipp Heeren, Johannes Rolink

Scalability Evaluation of a Modbus TCP Control and Monitoring System for Distributed Energy Resources
Néstor Rodríguez-Pérez, Javier Matanza Domingo, Gregorio López López, Vojislav Stojanovic

Towards Risk Assessment of Smart Grids with Heterogeneous Assets
Priyanka Arkalgud Ganeshamurthy, Antonello Monti

Location: Novi Sad Fair, Congress Centre Master – Room 3

9.30-10.45 - Paper session 24: Future energy markets and energy policy

Session Chair: Dr. Stevan Cveticanin, University of Novi Sad, Serbia

Effect of Future Distributed Energy Resources Penetration Levels on a Local Electricity Market
Sjoerd Doumen

A Compensation Mechanism for EV Flexibility Services using Discrete Utility Functions
Juan S. Giraldo, Nataly Bañol Arias, Edgar Mauricio Salazar Duque, Gerwin Hoogsteen, Johann L. Hurink

On the Effects of Active Energy Community Participation in the Energy System
Gerwin Hoogsteen, Aditya Pappu, Bahman Ahmadi, Johann L. Hurink, Edmund W. Schaefer, Cihan Gercek, Richard P. van Leeuwen

Upper-layer Post-processing Local Energy Bids and Offers from Neighbouring Energy Communities
Juan J. Cuenca, Vahid Hosseinnezhad, Barry Hayes

Location: Novi Sad Fair, Congress Centre Master – Room 4

9.30-10.30 - Invited Speaker 3

Dr. Marko Delimar, University of Zagreb, Croatia
Grid modelling in AC systems with integrated power electronics devices

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Location: Novi Sad Fair, Congress Centre Master – Room 1

10.45-12.00 - Paper session 25: Substation modernization and automation

Session Chair: Dr. Bane Popadic, University of Novi Sad, Serbia

Data Gathering Procedure for ADMS Deployment
Duško Bekut, Goran Švenda, Sonja Kanjuh, Verica Koturević

Ground Directional Protection Assesment in Inverter Dominated Distribution Networks
Christos Frangeskou, Lenos Hadjidemetriou, Markos Asprou, Christos Panayiotou

Improved Grid State Identification Algorithms Using Voltage Measurements for Underdetermined Low Voltage Grids
Markus Koch

Measurement and Operation Based Condition Monitoring Methodology for High Voltage Circuit Breakers
Sajjad Asefi, Guido Andreesen, Madis Leinakse, Jako Kilter, Tauri Kalmet, Henri Manninen, Mart Landsberg

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Location: Novi Sad Fair, Congress Centre Master – Room 2

10.45-12.00 - Paper session 26: Demand response and demand side management (Part II)

Session Chair: Dr. Ali Arab, University of Denver, USA

Optimal Flexible Load Programming Based on Time of Use Pricing for the Colombian Energy Market
Sergio Daniel Montaña Salas, Carlos Adrian Correa

Optimal Model for Prosumer Remuneration Schemes Considering Electric Vehicle Chargers Coordination
Cesar Diaz-Londono, José Vuelvas, Giambattista Gruosso, Carlos Adrian Correa-Florez

Distributed Co-operative Demand Side Management for Energy Communities
Aditya Pappu, Gerwin Hoogsteen, Johann Hurink

Data-driven modelling for HVAC energy flexibility optimization
Ana David, Mazen Alamir, Claude Le Pape-Gardeux

Location: Novi Sad Fair, Congress Centre Master – Room 3

10.45-12.00 - Paper session 27: Flexible distribution networks

Session Chair: Dr. Tuan Le, Chalmers University of Technology, Sweden

Optimal cross-voltage operation of active distribution systems based on a comprehensive technical management of flexible loads and storages in the grid
Nasratullah Mohseni, Sergio F. Contreras, M. Adnan Shihab, Johanna Myrzik

Reinforcement Learning Based Optimal Load Shedding for Transient Stabilization
Yunhe Wei, Al-Amin Bashir Bugaje, Federica Bellizio, Goran Strbac

Impact of System Conditions on Demand-Side Flexibility Potential in Industrial Production
Román Cantú Rodríguez, Geert Deconinck, Emilio José Palacios-García

Fast Mapping of Flexibility Regions at TSO-DSO Interfaces under Uncertainty
Alice Patig, Ognjen Stanojev, Petros Aristidou, Aristides Kiprakis, Gabriela Hug

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Location: Novi Sad Fair, Congress Centre Master – Room 4

10.30-12.00 - Industry Showcase

Participants

- Schneider Electric HUB Novi Sad - Nenad Tojagić
- Elektromreža Srbije - Mr.Petar Petrović
- Power Engineers – Mr.Larry Wilke
- Typhoon HIL - Mrs. Božica Kovačević
- ALBO Energy - GE partnership - Mr.Radenko Milićević
- RCM Technologies Silver – Mr. Zoran Nešovanović

Location: Novi Sad Fair, Congress Centre Master

12.00-13.00 - Lunch

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

13.00-14.00 - Plenary Speaker 6

Prof. Vladimir Terzija, Skoltech University, Russia
Digitalization: Revolution Leading to Sustainable and Low-Carbon Energy Systems

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Location: Novi Sad Fair, Congress Centre Master – Room 5

14.00-16.00 - Poster session 3

Session Chair: Dr. Amirhossein Sajadi, University of Colorado Boulder, USA

Design of a WAMPAC System for Implementation in the Greek Transmission System
Konstantinos Krommydas

Application of Physics-based Graph Convolutional Network in Real-time State Estimation of Under-determined Distribution Grids
Simon Stock, Markus Dressel, Davood Babazadeh, Christian Becker

Analysis of Losses and Voltages in Prosumer-Rich Distribution Feeders
Ivan Lukić, Kristijan Čvek, Krešimir Fekete, Marina Dubravac

Dynamic Reconfiguration Considering Hosting Capacity in Active Distribution Networks
Zeljko Popovic, Stanko Knezevic, Branislav Brbaklic, Mitra Glogovac

A proposal for implementing short-term congestion management market in distribution networks
Mehdi Attar, Sami Repo, Felix Gaumnitz, Andreas Ulbig

Low Voltage DC to Medium Voltage AC Step-up PV Grid-Connected Inverter Module With Robust DC-link Voltage Balancing, MPPT and Grid-Side Control
Kajanan Kanathipan, Muhammad Ali Masood Cheema, John Lam

Ancillary Frequency and Voltage Support Provision by Renewable Energy Sources in a Medium Voltage Distribution Network
Njegos Jankovic, Milan Prodanovic, Javier Roldan-Perez

Water-energy nexus and stochastic optimization in a isolated microgrid: application in arid zones of La Guajira in Colombia
Manuel Fernando Párraga Meneses, Arturo Fajardo Jaimes, José Vuelvas Quintana

Grid optimization using DER grid support functions
Izabela Stefani, Vladimir Stokic, Sinisa Dzaleta, Branislav Brbaklic

Evaluation of Harmonic Distortion in Distribution Networks under Transformer N-1 Security Criterion
Pablo Rodríguez-Pajarón, Araceli Hernandez, Jovica V. Milanovic

Case Study of Backup Application with Energy Storage in Microgrid
Rafaela Nascimento, Felipe Ramos, Aline Pinheiro, Washington Araújo, Manoel Marinho

Current Limitation Control through the Angle of Grid Impedance for Grid-Forming Direct Voltage Control
Mahshid Maherani, Hendrik Vennegeerts

Integration of an EMT HVDC model into a Transient Stability Study using Co-Simulation
Christian Scheibe, Michael Richter, Alexander Raab, Benedikt Stopfer, Gert Mehlmann

Decentralized microgrid control "beyond droop"
Marko Vekić, Ivana Isakov, Milan Rapaić, Stevan Grabić, Ivan Todorović, Vlado Porobić

Fractional modeling and analytic solution of supercapacitor response
Kristina Milić, Stevan Cvetićanin, Nikola Vukajlović, Dragan Milićević, Marina Subotin, Dragan Pejić

Application of shunt active power filters in active distribution networks
Mario Primorac, Zvonimir Klaić, Matej Žnidarec, Josip Job

Location: Novi Sad Fair, Congress Centre Master – Room 1

14.00-16.00 - Panel Session 9: Modelling of flexibility and DER integration for low-carbon communities

Moderator: Dr. Lia Gruber, Graz University of Technology, Austria

Panelists

- Dr. Lia Gruber, Graz University of Technology, Austria
  Optimizing energy communities: From autarky to self-consumption
- Dr. Matteo Troncia, Comillas Pontifical University, Spain
  Local markets for energy communities: designing efficient markets and assessing the integration from the electricity system perspective
- Dr. Pedro Crespo del Granado, Norwegian University of Science and Technology (NTNU), Norway
  Trends in Local electricity market designs: Emerging Business models and incentivizing Flexibility
- Dr. Ivana Kockar, University of Strathclyde, UK
  Local Provision of Flexibility: approaches, challenges and solutions

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Location: Novi Sad Fair, Congress Centre Master – Room 2

14.00-16.00 - Panel Session 10: The role of flexibility in enabling the energy transition

Moderator: Dr. Hussain Kazmi, Katholieke Universiteit Leuven (KU Leuven), Belgium

Panelists

- Dr. Geert Deconinck, KU Leuven, Belgium
  Stacking flexibility from batteries based on stochastic optimisation
- Dr. Jelena Ponocko, University of Manchester, UK
  Assessing and managing demand-side flexibility for more sustainable power systems
- Dr. Vincent Debusschere, Grenoble-INP, France
  Modelling and optimizing energy flexibility in the distribution grid

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Location: Novi Sad Fair, Congress Centre Master – Room 3

14.00-16.00 - Paper session 28: Data analytics, machine learning, and artificial intelligence in smart grids (Part III)

Session Chair: Dr. Aleksandar Selakov, University of Novi Sad, Serbia

Data Generation Methodology for Machine Learning-based Power System Stability Studies
Francesca Rossi, Eduardo Prieto-Araujo, Marc Cheah, Oriol Gomis Bellmunt

An Electrical Model-Free Optimal Power Flow for PV-Rich Low Voltage Distribution Networks
Angela Simonovska, Vincenzo Bassi, Arthur Gonçalves Givisiez, Luis F. Ochoa, Tansu Alpcan

Effect of Clustering in Federated Learning on Non-IID Electricity Consumption Prediction
James S. Nightingale, Yingjie Wang, Fairouz Zobiri, Mustafa A. Mustafa

Distribution Grid Topology Calibration Based on a Data-Driven Approach
Milos Subasic, Giancarlo Dalle Ave, Marco Giuntoli, Peter Noglik, Katarina Knezovic, Dmitry Shchetinin, William Peterson

A hybrid Protection Scheme based on Deep Reinforcement Learning
Georg Kordowich, Michael Jaworski, Tobias Lorz, Christian Scheibe, Johann Jaeger

Generating Contextual Load Profiles Using a Conditional Variational Autoencoder
Chenguang Wang, Simon Tindemans, Peter Palensky

Location: Novi Sad Fair, Congress Centre Master – Room 4

14.00-16.00 - Paper session 29: Uncertainty management in smart grid planning, forecasting and operation

Session Chair: Dr. Goran Švenda, University of Novi Sad, Serbia

Effect of Short-term and High-resolution Load Forecasting Errors on Microgrid Operation Costs
Kyriaki Antoniadou-Plytaria, Ludvig Eriksson, Jakob Johansson, Richard Johnsson, Lasse Kötz, Johan Lamm, Ellinor Lundblad

Optimal Strategy of Energy Aggregators in the Energy and Regulation markets: Chance-Constrained Approach
Meysam Khojasteh, Pedro Faria, Fernando Lezama, Zita Vale

Optimal Planning of Electric Vehicles Energy Exchange in Parking Lots Considering Uncertainties
David Sanchez, Santiago Torres, José Chillogalli, Harold Chamorro, Luis Gonzales, Vijay Sood, Rubén Romero

PHIL Infrastructure in CoSES Microgrid Laboratory
Anurag Mohapatra, Thomas Hamacher, Vedran Peric

Home Energy Management System based on Deep Reinforcement Learning Algorithms
Aysegül Kahraman, Guangya Yang

Representative feeders for spatial scaling of stochastic PV hosting capacity
Arpan Koirala, Md Umar Hashmi, Dirk Van Hertem, Reinhilde D'hulst

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Location: Novi Sad Fair, Congress Centre Master – Room 1

16.00-18.00 - Panel Session 11: FLEXI-GRID – Enabling Flexibility for Future Distribution Grids with High Penetration of Variable Renewable Generation

Moderator: Dr. Tuan Le, Chalmers University of Technology, Sweden

Panelists

- Dr. Tuan Le, Chalmers University of Technology, Sweden
  FLEXI-GRID: Introduction and main achievements
- Dr. Phuong Nguyen, Technical University of Eindhoven, The Netherlands
  Enhancing grid flexibility with advanced monitoring, control, and flexibility intervention functionalities
- Dr. David Steen, Chalmers University of Technology, Sweden
  Grid controls and provision of flexibilities from distributed energy resources at Chalmers campus
- Dr. Thong Vu Van, EMAX, Belgium
  A blockchain based peer-to-peer flexibility trading platform for the future DSOs
- Mr. Ibrahim İbrahim Gazioglu, OEDAS, Turkey
  Intelligent EVs management platform and provisions of flexibilities from battery storage and V2G: DSO's perspectives

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Location: Novi Sad Fair, Congress Centre Master – Room 2

16.00-18.00 - Panel Session 12: The Economics of Decarbonization: Optimizing Pathways to Net-Zero Emissions Energy Systems

Moderator: Dr. Ali Arab, University of Denver, USA

Panelists

- Dr. Vladimir Terzija, Skoltech, Russia
  Technological Enablers and Data-driven Solutions for Decarbonization
- Dr. Murali Baggu, National Renewable Energy Laboratory (NREL), USA
  Accelerating Clean Energy at Scale: Analysis and Technology Solutions
- Dr. Sonja Wogrin, Graz University of Technology, Austria
  Economic Solutions for Optimizing Pathways to Net-Zero Emissions Energy Systems
- Dr. Dino Lelic, Quanta Technology, USA
  The Economics of Decarbonization: A Power & Utilities Industry Perspective

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Location: Novi Sad Fair, Congress Centre Master – Room 3

16.00-18.00 - Paper session 30: Industry Applications (Part II)

Session Chair: Dr. Bane Popadic, University of Novi Sad, Serbia

EU-India Collaboration for Smarter Microgrids: RE-EMPOWERED project
Panos Kotsampopoulos, Aris Dimeas, Alexandros Chronis, Georgia Saridaki, Nikos Hatziargyriou, Suman Maiti, Chandan Chakraborty

Volt Var Watt Optimization in Distribution Network with High Penetration of Renewable Energy Sources and Electric Vehicles
Goran Švenda, Ivana Krstić, Sonja Kanjuh, Milena Jajčanin, Dejan Vuletić

Distribution State Estimator Tuning Procedure – SA Power Networks' Challenges and Learnings
Steven Barone, Goran Švenda, Sonja Kanjuh

Monitoring Electricity Demand Synchronization Using Copulas
Tobias Gebhard, Eva Brucherseifer, Florian Steinke

Improving Operational Efficiency and Reducing Costs in Distribution Utility with the Use of IEC 61850 Communication Protocol
Danilo Bojović, Nebojša Obradović, Nebojsa Kurjakov

Impact of existing fault protections of wind power plants with Doubly Fed Induction Machines on Fault Currents
Andrija Mitrovic, Luka Strezoski

Relay Protection in Microgrids: Settings and Sensitivity in Presence of IBDERS
Nikola Simić, Luka Strezoski, Radenko Milićević

Location: Novi Sad Fair, Congress Centre Master – Room 4

16.00-18.00 - Paper session 31: Integration and management of energy storage systems

Session Chair: Dr. Ivan Todorović, University of Novi Sad, Serbia

Energy Storage Arbitrage and Peak Shaving in Distribution Grids Under Uncertainty
Lysandros Tziovani, Lenos Hadjidemetriou, Stelios Timotheou

Recuperation of railcar breaking energy using energy storage at station level
Edmund Schaefer, Bart Homan, Gerwin Hoogsteen, Johann Hurink, Richard van Leeuwen

Addressing Unfeasibilities of Energy Storage Systems Participating in Energy and Reserve Markets
Hadi Nemati, Lukas Sigrist, Luis Rouco Rodríguez, Pedro Sánchez-Martín, Álvaro Ortega

A Fast and Automatic Methodology for Selecting Lithium-Ion Cells for Second-Life Batteries
Aghatta Moreira, Marcelo Camboim, Raul Beck, Maria de Fatima Rosolem, Vitor Arioli, Jonathan Moura, Camila Omae, Hongwu Ding

Simplistic Revenue Based BESS Sizing Tool Developed in Python Using Historical Grid Data
Lucas Tunelid, Micheal Peri, Srinath Sathyamoorthy, Hamza Shafique, Andres Rozas, Lina Bertling Tjernberg

Aging Characteristics Consideration in Adaptive Control Design of Grid-Scale Lithium-ion battery
Chethan Parthasarathy, Hannu Laaksonen, Illari Alaperä

Location: Novi Sad Fair, Congress Centre Master - Main Auditorium

18.00-19.00 - Closing Ceremony

Day 1 – Monday, October 10th

Time	Main Auditorium	Room 1	Room 2	Room 3	Room 4	Room 5
7am-8pm	**Registration**					
9.00-10.00	**Opening Ceremony**					
10.00-11.00	**Plenary Speaker 1 : Prof. Frede Blaabjerg**					
11.00-12.15	Super Session 1 : Stability, Dynamics, and Control of Emerging Renewable-Rich Power Systems	Paper session 1: Hybrid power systems and microgrids (Part I)	Paper session 2: Data analytics, machine learning, and artificial intelligence in smart grids (Part I)	Paper session 3: Computer modelling and simulation advances (Part I)	Invited Speaker 1 : Dr. Michael Murphy	
12.15-13.30		Paper session 4: Cyber-physical and cybersecurity in smart grids (Part I)	Paper session 5: Integration of variable renewable energy and distributed energy resources (Part I)	Paper session 6: Integration and operation of power electronics-interfaced resources (Part I)	Industrial Plenary 1 : Wayne Bishop (IEEE)	
13.30-14.30	**Lunch**					
14.30-15.30	**Plenary Speaker 2: Prof. Alex Stankovic**					
15.30-17.30	WiP Panel Session 1: Taking the Most of IEEE and CIGRE Memberships	Panel Sessions 1 : Enhanced Grid Resilience by Data Sharing Between Protective and Control Systems, Operators and Significant Grid Users	Panel Sessions 2: Role of Quantum Computing in Building the Grid of the Future	Paper session 7: Automation of active distribution systems	Paper session 8: Low-inertia and inertia-free power systems	Poster session 1
17.30-19.30		Panel Sessions 3: Research Capabilities and Thrusts of the U.S. Department of National Laboratories	Panel Sessions 4: Active Network Management – solutions to support distribution grid development	Paper session 9: Grid resilience management and enhancement	Paper session 10: Integration of variable renewable energy and distributed energy resources (Part II)	Paper session 11: Future power systems
19.30-21.00	**Networking and reception**					

Day 2 – Tuesday, October 11th

Time	Main Auditorium	Room 1	Room 2	Room 3	Room 4	Room 5
7am-8pm	**Registration**					
8.30-9.30	**Plenary Speaker 3: Prof. Nikos Hatziargyriou**					
9.30-10.45	Super Session 2: Resilience and Reliability of Electricity and Gas Networks Under Extreme Events	Paper session 12: Hybrid power systems and microgrids (Part II)	Paper session 13: Advances in ADMS, DERMS, EMS, and OMS solutions	Paper session 14: Computer modelling and simulation advances (Part II)	Invited Speaker 2: Dr. Murali Baggu	
10.45-12.00		Paper session 15: Cyber-physical and cybersecurity in smart grids (Part II)	Paper session 16: Demand response and demand side management (Part I)	Paper session 17: Integration and operation power electronics-interfaced resources (Part II)	Industrial Plenary 2 : Alexis Grenon (SE)	
12.00-13.00	**Lunch**					
13.00-14.00	**Plenary Speaker 4 - Prof. Thomas Overbye**					
14.00-16.00	WiP Panel Session 2: Multidisciplinary Skill Needs as a Response to Global Challenges in Power and Energy	Panel Sessions 5: Powering System flexibility in the Future through Renewable, H2020 POSYTYF project	Panel Sessions 6: Enabling the energy transition while maintaining power system stability	Paper session 18: Data analytics, machine learning, and artificial intelligence in smart grids (Part II)	Paper session 19: Mass integration of electric vehicles	Poster session 2
16.00-18.00		Panel Sessions 7: Pushing the Boundaries of Real-Time Simulations for Validation of Future Complex Power Systems	Panel Sessions 8: Control and Optimization of Microgrids with Hybrid & Hydrogen Energy Storage Systems: Challenges and Solutions	Paper session 20: Industry Applications (Part I)	Paper session 21: Integration of variable renewable energy and distributed energy resources (Part III)	
20.00-23.00	**Gala Dinner**					

Day 3 – Wednesday, October 12th

Time	Main Auditorium	Room 1	Room 2	Room 3	Room 4	Room 5
7am-8pm	**Registration**					
8.30-9.30	**Plenary Speaker 5 : Dr. Dejan Milojicic**					
9.30-10.45	Super Session 3: Artificial Intelligence for Active Power Distribution	Paper session 22: Hybrid power systems and microgrids (Part III)	Paper session 23: Communication and real-time connectivity in smart grid	Paper session 24: Future energy markets and energy policy	Invited Speaker 3: Dr. Marko Delimar	
10.45-12.00		Paper session 25: Substation modernization and automation	Paper session 26: Demand response and demand side management (Part II)	Paper session 27: Flexible distribution networks	Industry showcase	
12.00-13.00	**Lunch**					
13.00-14.00	**Plenary Speaker 6: Prof. Vladimir Terzija**					
14.00-16.00		Panel Sessions 9: Modelling of flexibility and DER integration for low-carbon communities	Panel Sessions 10: The role of flexibility in enabling the energy transition	Paper session 28: Data analytics, machine learning, and artificial intelligence in smart grids (Part III)	Paper session 29: Uncertainty management in smart grid planning, forecasting and operation	Poster session 3
16.00-18.00		Panel Sessions 11: FLEXI-GRID – Enabling Flexibility for Future Distribution Grids with High Penetration of Variable Renewable Generation	Panel Sessions 12: The Economics of Decarbonization: Optimizing Pathways to Net-Zero Emissions Energy Systems	Paper session 30: Industry Applications (Part II)	Paper session 31 : Integration and management of energy storage systems	
18.00-19.00	**Closing Ceremony**					

Legend:

Plenary session	Invited session	Super session	Panel session	Paper session	Poster sesion	Industiral