

October 23-26 | Grenoble, France

2023 IEEE PES ISGT EUROPE

*Powering solutions for decarbonized and
resilient future smartgrids*

**INTERNATIONAL SMARTGRIDS
TECHNOLOGIES CONFERENCE**

ORAL SESSIONS

Monday 23 October 2023

16:30-18:00

Power Flow & Optimal Power Flow

MontBlanc 1-2

PAPER PRESENTATION

Chair : Prof. Jens Haubrock (Univ. of Applied Sciences and Arts of Bielefeld, Germany)

A8876HZ

Modelling and Validation of Electric Vehicle Battery Chargers for Power Flow and Harmonic Studies

Haroon Zafar (1) (presenting author), As'ad Zakaria (1), Sasa Djokic (1)

1 University of Edinburgh, Edinburgh, United Kingdom

A8713OR

Network Distribution Constraints Optimisation Algorithm - An Australian Case Study

Osaka Rubasinghe (1) (presenting author), Tingze Zhang (1), Tyrone Fernando (1), Peter Howe (2), Xinan Zhang (1), Herbert Ho-Ching lu (1)

1 The University of Western Australia, Perth, Australia

2 Western Power, Perth, Australia

A8739RS

Learning to Predict Security Constraints for Large-Scale Unit Commitment Problems

Rafael Sterzinger (1) (presenting author), Jan Poland (2), Max B. Paulus (1), Didier Chételat (3)

1 ETH Zürich, Zürich, Switzerland

2 Hitachi Energy Research, Baden-Dättwil, Switzerland

3 Polytechnique Montréal, Montréal, Canada

A8716IV

Scalable Bilevel Optimization for Generating Maximally Representative OPF Datasets

Ignasi Ventura Nadal (1) (presenting author), Samuel Chevalier (1)

1 Technical University of Denmark, Kongens Lyngby, Denmark

A9147GP

Dynamic Weight Enabled Physics-Aware Graph

Attention Network For Power Flow Analysis

Garima Prashal (1) (presenting author), P. Sumathi (1), Narayana Prasad Padhy (1)

1 IIT Roorkee, Roorkee, India

A9057XD

Distributed Optimal Power Flow for VSC-MTDC Meshed AC/DC Grids Using ALADIN

Junyi Zhai (1), Xinliang Dai (2) (presenting author), Yuning Jiang (3), Ying Xue (4), Veit Hagenmeyer (2), Colin Jones (3), Xiao-Ping Zhang (5)

1 China University of Petroleum, Qingdao, China

2 Karlsruhe Institute of Technology, Karlsruhe, Germany

3 Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

4 South China University of Technology, Guangzhou, China

5 University of Birmingham, Birmingham, United Kingdom

Monday 23 October 2023

16:30-18:00

TSO-DSO interactions

MontBlanc 3-4

PAPER PRESENTATION

Chair : Prof. Gianfranco Chicco (Politecnico di Torino, Italia)

A8751DV

Probabilistic Data-driven Nodal Voltage Forecasting considering Active Distribution Networks

Dawn Virginillo (1) (presenting author), Stavros Karagiannopoulos (1)
1 Swissgrid AG, Aarau, Switzerland

A8849XX

Development of a Dynamic Hybrid Meshed AC/DC Transmission Grid for Studying Small-signal Rotor Angle Stability

Chang You (1), Xiong Xiao (1) (presenting author), Chengxiao Shen (1), Soham Choudhury (1), Jutta Hanson (1)
1 Department of Electrical Power Supply with Integration of Renewable Energy (E5), Technical University of Darmstadt, Darmstadt, Germany

A8977CJ

Distributed Flexibility Estimation for TSO-DSO Interactions

Corentin Jacquier (1) (presenting author), Rémy Rigo-Mariani (1), Vincent Debusschere (1), Jean-Nicolas Louis (2), Silvana Mima (3)
1 G2Elab, Grenoble, France
2 VTT, Espoo, Finland
3 GAEL, Grenoble, France

A9035SA

Comparison of Heuristic Optimization-Based Methods for Determining the Flexibility Potential at Vertical System Interconnections

Sharaf Alsharif (1) (presenting author), Marcel Sarstedt (2), Eric MSP Veith (3)
1 OFFIS e.V., Oldenburg, Germany
2 Leibniz Universität Hannover, Institute of Electric Power Systems, Hannover, Germany
3 Carl von Ossietzky University Oldenburg, Oldenburg, Germany

A8741LS

Determination of Interdependent Feasible Operation Regions at Multiple TSO-DSO Interconnections

Lars Stark (1) (presenting author), Marcel Sarstedt (1), Lutz Hofmann (1)
1 Institute of Electric Power Systems - Electric Power Engineering Section, Leibniz Universität Hannover, Hanover, Germany

A8846SY

Robust Fault Detection and Characterisation in AC Microgrids using Ensemble Empirical Mode Decomposition

Satyavarta Kumar Prince (1), Seifeddine Ben Elghali (2), Affijulla Shaik (1), Gayadhar Panda (1) (presenting author)
1 NATIONAL INSTITUTE OF TECHNOLOGY MEGHALAYA, SHILLONG, India
2 AIX-Marseille University, Marseille, France

Monday 23 October 2023

16:30-18:00

Model reduction

Everest

PAPER PRESENTATION

Chair : Dr. Andrea Michiorri (Assoc. Prof. at Mines Paris, PSL University, France)

A9072YB

Aggregation and Profit Allocation Models for Distributed Energy Resources Aggregator

Smita Lokhande (2), Yogesh Kumar Bichpuriya (1) (presenting author), Venkatesh Sarangan (3), Narayanan Rajagopal (4)
1 TCS Research, Tata Consultancy Services Ltd., Pune, India
2 TCS Research, Tata Consultancy Services Ltd., Mumbai, India
3 TCS Research, Tata Consultancy Services Ltd., Chennai, India
4 TCS Research, Tata Consultancy Services Ltd., Bengaluru, India

A9138JS

Applying Vector Fitting for Measurement-based Multiple-Input Multiple-Output Model Identification of a Grid Forming Converter

Lisa Reis (2,3) (presenting author), Andrew Macmillan Smith (1), Salvatore D'Arco (1), Jon Are Suul (1,2)
1 SINTEF Energy Research, Trondheim, Norway
2 Department of Engineering Cybernetics, Norwegian University of Science and Technology, Trondheim, Norway
3 Technical University of Kaiserslautern, Kaiserslautern, Germany

A9107YW

A Projection-Based Approach for Distributed Energy Resources Aggregation

Yiran Wang (1) (presenting author), Haiwang Zhong (2), Guangchun Ruan (3)
1 Tsinghua University, Beijing, China
2 Tsinghua University, Beijing, China
3 Massachusetts Institute of Technology, Boston, United States

A8920MA

Application of the State-Relevance Method to Calculation of Reduced Order Models of Virtual Power Plants

Marco Vinicio Avendano-Caiza (1,2) (presenting author), Javier Roldan-Perez (1), Milan Prodanovic (1), Rodriguez-Amenedo Jose Luis (2)
1 IMDEA Energy, Mostoles, Spain
2 Carlos III University, Leganes, Spain

A9073NK

Model Reduction Method for Distribution System Including Smart Inverters with Grid-Forming Droop Control

Nobuaki Kawashima (1) (presenting author)
1 Hokkaido University, Sapporo, Japan



A8881JW

A Low-Order Steady-State Model of Electric Springs for Conservation Voltage Reduction in Active Distribution Networks with Renewables

Jian Wang (1) (presenting author), Keng Weng Lao (2), Ningyi Dai (2), Haoming Liu (1), Yuan Chi (3), Qianggang Wang (3), Yonghua Song (2)

1 Hohai University, Nanjing, China

2 University of Macau, Macau, China

3 Chongqing University, Chongqing, China

Monday 23 October 2023

16:30-18:00

HVDC and MMC

Makalu

PAPER PRESENTATION

Chair : Prof. Lina Bertling Tjernberg (KTH, Sweden)

A8747FX

Non-unit DC Line Protection Method for Multi-terminal MMC-HVDC System Based on Normalized Backward Traveling Waves

Fan Xie (1,2), Le Liu (2) (presenting author), Marjan Popov (2), Zhiguo Hao (1), Aleksandra Lekic (2)
1 State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China
2 Faculty of Electrical Engineering, Mathematics & Computer Science, Delft University of Technology, Delft, Netherlands

A8865KH

A Modeling Approach for MVDC Grid Planning and Evaluation of the Design Parameters

Katharina Hetzenecker (1) (presenting author), Tim Karsten (1), Jan Mathé (1), Rik W. De Doncker (1)
1 Institute for Power Generation and Storage Systems, E.ON Energy Research Center, RWTH Aachen University, Aachen, Germany

A8980XL

Comparison of Control Structures for Fault Current Injection and Energy Balancing in MMC-HVDC

Xiaoxiao Liu (1,2,3) (presenting author), Paul Judge (3), Leterme Willem (1,2), Dirk Van Hertem (1,2)
1 dept. of Electrical Engineering, KU Leuven, Leuven, Belgium
2 EnergyVille, Genk, Belgium
3 School of Engineering, University of Edinburgh, Edinburgh, United Kingdom

A8857LB

Voltage Support and Electrical Stresses in MMC-HVDC Systems during AC Faults

Lucas Bex (1,2) (presenting author), Xiaoxiao Liu (1,2,3), Willem Leterme (1,2), Paul Judge (3), Dirk Van Hertem (1,2)
1 KU Leuven, Leuven, Belgium
2 EnergyVille, Genk, Belgium
3 University of Edinburgh, Edinburgh, United Kingdom

A8807FP

Study of Low-Frequency Interactions between Grid-Forming MMCs located on both sides of a Bipolar HVDC link

Francesco Giacomo Puricelli (1,2) (presenting author), Rault Pierre (3), Carmen Cardozo (4), Jef Beerten (1,2)
1 KU Leuven, Leuven, Belgium
2 EnergyVille, Genk, Belgium
3 Réseau de Transport d'Electricité (RTE) - CNER, Paris La Defense, France
4 Réseau de Transport d'Electricité (RTE) - R&D, Paris La Defense, France

Tuesday 24 October 2023

8:30-10:00

Artificial intelligence 1

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Mònica Aragüés Peñalba (Assoc. Prof. at UPC Barcelona, Spain)

A8904fN

A Comparison of Various Deep Learning Methods for Household Load Forecasting

Karthikeyan Deivamani (1), Farshid Norouzi (1) (presenting author), Aditya Shekhar (1), Povel Bauer (1)
1 TUDelft, delft, Netherlands

A8996MH

Machine Learning-Based Forecasting of the Automatic Frequency Restoration Reserve Demand

Martin Henych (1) (presenting author), Mamula Ondrej (1), Sovka Pavel (1), S`ucha Premysl (1)
1 Czech Technical University in Prague, Prague, Czechia

A8917KK

Automatic Load Management in Active Distribution Grids Using Reinforcement Learning

Eleni Stai (1), Katharina Kaiser (1) (presenting author), Josua Stoffel (1), Marina Gonzalez Vaya (2), Gabriela Hug (1)
1 ETH Zurich, Zurich, Switzerland
2 Elektrizitätswerke des Kantons Zürich (EKZ), Zurich, Switzerland

A9231ZK

Adaptive Activation Functions for Deep Learning-based Power Flow Analysis

Zeynab Kaseb (1) (presenting author), Yu Xiang (2), Peter Palensky (1), Pedro P. Vergara (1)
1 Delft University of Technology, Delft, Netherlands
2 Alliander N.V., Arnhem, Netherlands

A8947XY

Application of Machine Learning and Hyper-Parameter Optimisation for Efficient Prediction of Transient Stability

Xinlin Ye (1) (presenting author), Jovica V. Milanovic (1)
1 The University of Manchester, Manchester, United Kingdom

Tuesday 24 October 2023

8:30-10:00

Applications on real case study 1

MontBlanc 3-4

PAPER PRESENTATION

Chair : Prof. Tuan Quoc Tran (CEA, France)

A8604

Assesment of Supraharmonic Injections in Turkish Distribution Systems

Özgür Arda Küçükcaslan (1), Ayse Nur Önder Erkan (2), Kaya Kerim (3), Caner Özen (3), Büsra Büyükbas (3), Nafiz Özcan (2), Tuba Avsar (3), Pertev Cinalioglu (2), Arsalan Bayatmakoo (3), Murat Göl (1) (presenting author)

1 Department of Electrical & Electronics Engineering, Middle East Technical University, Ankara, Turkey

2 ENTT Energy, Ankara, Turkey

3 Yesilirmak EDAS, Samsun, Turkey

A8793FH

What drives electricity tariffs in Switzerland? Two-stage statistical and geospatial analysis of structural differences across 1913 municipalities

Noemie Jeannin (2), Yael Frischholz (2), Fabian Heymann (1) (presenting author), Pablo Duenas (3)

1 Swiss Federal Office for Energy, Bern, Switzerland

2 EPFL, Lausanne, Switzerland

3 Massachusetts Institute of Technology, Cambridge (MA), United States

A8656GG

Modelling and simulating new power grid control architectures

Mathilde Arnaud (2), Arnault Lapitre (2), Yves Lhuillier (2), Stéphane Salmons (2), Asma Smaoui (1), Guillaume Giraud (1) (presenting author), Arnaud Guerrier (1)

1 RTE, Paris, France

2 Université Paris-Saclay, CEA, List, Palaiseau, France

A8736TR

Controlling Microgrids Without External Data: A Benchmark of Stochastic Programming Methods

Alban Puech (1) (presenting author), Tristan Rigaut (1), Adrien Le Franc (2), William Templier (1), Jean-Christophe Alais (1), Maud Tournoud (1), Alejandro Yousef (1), Elena Stolyarova (1)

1 AI Hub - Schneider Digital - Schneider Electric, Grenoble, France

2 LAAS - CNRS, Toulouse, France

A9104FH

Regulating Artificial Intelligence in the EU, United States and China - Implications for energy systems

Fabian Heymann (1) (presenting author), Konstantinos Parginos (2), Ali Hariri (3), Gabriele Franco (4)

1 Swiss Federal Office for Energy, Bern, Switzerland

2 MINES Paris, PSL University, Sophia Antipolis, France

3 Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

4 PANETTA Law Firm, Rome, Italy



A8667CS

Co-Simulation of real-time and offline power system models: An application example

Yuyao Feng (1), Xuejun Xiong (1), Christian Scheibe (2) (presenting author), Hanzhong Wang (2), Piergiovanni La Seta (2), Holger Müller (2)

1 State Grid Shanghai Municipal Electric Power Company, Shanghai, China

2 Siemens AG, Erlangen, Germany

Tuesday 24 October 2023

8:30-10:00

Distribution networks sizing and planning

Everest

PAPER PRESENTATION

Chair : Dr. Marie-Cécile Alvarez Hérault (Assoc. Prof. at Grenoble INP | Univ. Grenoble Alpes, France)

A9220VV

Python-Based Planning Tool for LVAC Rural Electrification: Cluster Phase Balancing and Radial Topology

Vannak Vai (1), Marie-Cécile Alvarez-Hérault (2) (presenting author), Bertrand Raison (2)

1 Institute of Technology of Cambodia, Phnom Penh, Cambodia

2 Univ. Grenoble Alpes, CNRS, Grenoble INP, G2Elab, Grenoble, France

A8818YA

Agglomerative Hierarchical Clustering Applied to Medium Voltage Feeder Hosting Capacity Estimation

Yassine Abdelouadoud (1) (presenting author), Robin Girard (1), Sébastien Vallet (2)

1 Mines Paris, Sophia Antipolis, France

2 Roseau Technologie, Grenoble, France

A8765MW

Approach on Active Distribution Grid Planning by Using the Feasible Operation Region

Manuel Wingenfelder (1) (presenting author), Marcel Sarstedt (1), Lutz Hofmann (1)

1 Leibniz University Hannover, Institute of Electric Power System, Electric Power Engineering Section, Hanover, Germany

A9049GB

A one-leader multi-follower approach to distribution network development planning

Geoffrey Bailly (1) (presenting author), Manon Cornet (1), Mevludin Glavic (1), Bertrand Cornélusse (1)

1 University of Liège, Liege, Belgium

A9074FT

Increasing Hosting Capacity of Uncontrollable Distributed Energy Resources in Isolated Power Systems

Fivos Therapontos (1,2), Andreas Stavrou (3) (presenting author), Petros Aristidou (4)

1 University of Cyprus, Nicosia, Cyprus

2 Distribution System Operator - Electricity Authority of Cyprus, Nicosia, Cyprus

3 Transmission Network Owner - Electricity Authority of Cyprus, Nicosia, Cyprus

4 Cyprus University of Technology, Limassol, Cyprus

A8899AA

Stochastic Capital Budgeting of Microgrid Projects Under Electricity Market Uncertainty

Amin Khodaei (1), Ali Arabnya (1) (presenting author)

1 University of Denver, Denver, Colorado, United States

Tuesday 24 October 2023

8:30-10:00

Batteries for the power system 1

Makalu

PAPER PRESENTATION

Chair : Dr. Atri Bera (Energy Storage Tech. & Systems at Sandia National Laboratories, USA)

A8942FM

Energy Optimization Controllers for Residential Peak Load Shaving and Cost Minimization

Felicitas Mueller (1) (presenting author), Steven de Jongh (1), Claudio Canizares (2), Thomas Leibfried (1), Kankar Bhattacharya (2)

1 Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

2 University of Waterloo (UoW), Waterloo, Canada

A8842AP

Optimal Battery Charge Scheduling For Revenue Stacking Under Operational Constraints Via Energy Arbitrage

Alban Puech (2,3) (presenting author), Gorazd Dimitrov (2), Claudia D'Ambrosio (1)

1 LIX CNRS, École polytechnique, Institut Polytechnique de Paris, Palaiseau, France

2 Institut Polytechnique de Paris, Palaiseau, France

3 DEIF Wind Power Technology, Klagenfurt, Austria

A8642KM

Linear Approximation of Calendar Battery Aging Costs for MILP-Based Power Dispatch Optimization

Kurt Majewski (1) (presenting author), Martin Seydenschwanz (1), Corinna Gottschalk (1), Sonja Weiland (2)

1 Siemens AG, T DAI ORD-DE, Munich, Germany

2 Technische Universität München, Munich, Germany

A8998KH

Control of distributed energy storage systems for minimum reverse flow in a distribution grid with high share of photovoltaic

Katrin Handel (1) (presenting author), Katrin Schulte (1), Rémy Rigo-Mariani (2), Jens Haubrock (1), Jan Arens (3)

1 University of Applied Sciences and Arts Bielefeld, Bielefeld, Germany

2 University Grenoble Alpes, Grenoble, France

3 Westfalen Weser Netz GmbH, Paderborn, Germany

A8803TG

Method to embed behavioral battery model in predictive Energy Management System

Axel Sutter (1), Tomasz T. Gorecki (1) (presenting author), Shubham S. Bhoir (1)

1 CSEM Sustainable Energy Center, Neuchatel, Switzerland

A9115AK

PINN with Memory: A Novel Methodology for State of Charge Estimation of Lithium-ion Batteries Under Dynamic Load Profile

Ali Kharal (1) (presenting author), Ijaz Naqvi (1), Naveed Arshad (1)

1 Lahore University of Management Sciences, Lahore, Pakistan

Tuesday 24 October 2023

8:30-10:00

Electric vehicles 1

Auditorium

PAPER PRESENTATION

Chair : Prof. Marc Petit (CentraleSupélec, France)

A8665JS

Optimal Planning of Autonomous Electric Vehicles Charging Stations with Photovoltaic Generations and Energy Storage Systems in Electric Distribution Systems

Tayenne Dias de Lima (3), Haider Ali (2) (presenting author), João Soares (1,4), John F. Franco (3), Bruno Francois (2), Luce Brutorne (5)

1 GECAD, Polytechnic of Porto, Porto, Portugal

2 Laboratoire d'Électrotechnique et d'Électronique de Puissance (L2EP), Ecole Centrale de Lille, Villeneuve d'Ascq, France

3 Department of Electrical Engineering, São Paulo State University (UNESP), Ilha Solt

A8641LW

Integrating Guarantees and Veto-Buttons into the Charging of Electric Vehicles at Office Buildings

Leoni Winschermann (1) (presenting author), Gerwin Hoogsteen (1), Johann Hurink (1)

1 University of Twente, Enschede, Netherlands

A9048JK

Controller design and measurement selection for dynamic load curtailment at a charging site

Jonatan Ralf Axel Klemets (1) (presenting author), Tim Unterluggauer (2), Bendik Nybakk Torsæter (1)

1 SINTEF Energy Research, Trondheim, Norway

2 Technical University of Denmark, Copenhagen, Denmark

A9008YM

A Design of Smart Charging Architecture for Battery Electric Vehicles

Riza Riza (2) (presenting author), Yusuf Margowadi (1), Prasetyo Aji (1), Eka Rakhman Priandana (1), Eka Nurdiana (1), Dwidharma Priyasta (3), Estiko Rijanto (4), Feri Yusivar (2)

1 Research Center for Conversion and Conservation Energy National Research and Innovation Agency (BRIN), Tangerang Selatan, Indonesia

2 Universitas Indonesia, Depok, Indonesia

3 Research Center for Electronics National Research and Innovation Agency (BRIN)

A9019AD

Optimal Pricing for Electric Vehicle Parking Duration under Uncertainty

Alix Dupont (1,2) (presenting author), Yezekael Hayel (1), Tania Jiménez (1), Jean-Baptiste Breal (2), Raphaël Payen (2), Olivier Beaudé (2)

1 Avignon university, Avignon, France

2 EDF lab, Paris-Saclay, France



A8790NB

Optimal EV Allocation and Charging within Parking Lots Using a Local Marginal Pricing Mechanism

Nataly Bañol Arias (1) (presenting author), Juan Sebastián Giraldo (2), Juan Camilo López (3), Gerwin Hoogsteen (1), Johann Hurink (1)

1 University of Twente, Enschede, Netherlands

2 Netherlands Organization for Applied Scientific Research (TNO), Amsterdam, Netherlands

3 State University of Campinas (UNICAMP), Campinas, Brazil

Tuesday 24 October 2023

14:30-16:00

Artificial intelligence 2

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Hussain Syed Kazmi (Assist. Prof. at KU Leuven, Belgium)

A9088TJ

Comparison of Different Machine Learning Models for Short-Term Load Forecasting at Transformer Level with High Amounts of Photovoltaic Generation

Timon Jungh (1) (presenting author), Bastian Steinhagen (1), Katrin Schulte (2), Marc Hesse (1)

1 Cognitronics and Sensor Systems, University of Bielefeld, Bielefeld, Germany

2 Institute for Technical Energy Systems, University of Applied Sciences and Arts Bielefeld, Bielefeld, Germany

A8749EA

Energy Market Predictions with Hybrid Neural Network 1D-CNN-BiGRU

Edvard Avdevicius (1) (presenting author), Mina Eskander (1), Detlef Schulz (1)

1 Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Hamburg, Germany

A8621MB

Deep attention convolutional neural network-based adaptive multi-source information fusion for accurate short-term photovoltaic power forecast

Mingliang Bai (1) (presenting author), Yunxiao Chen (1), Zhihao Zhou (1), Zhenhua Long (1), Jinfu Liu (1), Daren Yu (1)

1 Harbin Institute of Technology, Harbin, China

A8678YH

A Deep CNN-LSTM Model Tuned by PPSO for Spatiotemporal Solar GHI Forecasting

Ying-Yi Hong (1), Christian Lian Paulo Perez Rioflorida (1) (presenting author)

1 Chung Yuan Christian University, Taoyuan, Taiwan

A8687AA

Combinatorial Auctions and Graph Neural Networks for Local Energy Flexibility Markets

Awadelrahman M. A. Ahmed (1) (presenting author), Frank Eliassen (1), Yan Zhang (1)

1 University of Oslo, Oslo, Norway

A9029NY

Reconfigure Distribution Network with Physics-informed Graph Neural Network

Jingtao Qin (1), Nanpeng Yu (1) (presenting author)

1 University of California, Riverside, Riverside, United States

Tuesday 24 October 2023

14:30-16:00

Applications on real case study 2

MontBlanc 3-4

PAPER PRESENTATION

Chair : Prof. Oriol Gomis (Technical Univ. of Catalonia, Spain)

A8843WY

Optimising multi-factor assistance in a deep learning-based electricity forecasting model with climate resilience: an Australian case study

Weijia Yang (1) (presenting author), Sarah Sparrow (1), David Wallom (1)
1 University of Oxford, Oxford, United Kingdom

A9043YF

How Network Tariffs Impact the Optimal Design of Local Energy Systems: A Swiss Case Study

Yamshid Farhat (1,2) (presenting author), Gabriel Mihai Lipsa (1), Torsten Braun (2)
1 BKW Energie AG, Bern, Switzerland
2 University of Bern, Bern, Switzerland

A9038AK

On the Sequential Reserve Dimensioning for a Multi-Area Power System: Nordic Case Study

Abolfazl Khodadadi (1) (presenting author), Henrik Nordström (1), Lennart Söder (1)
1 KTH Royal Institute of Technology, Stockholm, Sweden

A8901fN

Economic Impact of New Pricing Policies on Solar PV Households in the Netherlands

farshid Norouzi (1) (presenting author), Aditya Shekhar (1), Thomas Hoppe (1), Pavol Bauer (1)
1 TUdelft, delft, Netherlands

A8786FS

Mobile Hydrogen Refueling Station: A Case Study of H2 E-Mobility on Ouessant Island

Fahad ali SARWAR (1) (presenting author), Ignacio HERNANDO GIL (1), Ionel VECHIU (1), Stephane LATIL (1), ilies DRISS (1)
1 H2gremm, ESTIA, Quimper, France

A8891AD

Potential Impact of Electric Vehicles Connected to the Grid- A Pre-Study for the Swedish Power System

Arundhati Dogra (1) (presenting author), Lina Bertling Tjernberg (1)
1 KTH Royal Institute of Technology, Stockholm, Sweden

Tuesday 24 October 2023

14:30-16:00

Heat pumps for the grid

Everest

PAPER PRESENTATION

Chair : Prof. Gayadhar Panda (National Institute of Technology, Meghalaya, India)

A8811GR

Medium-term impact of daily heat pump load profiles to forecast congestion of distribution network assets

George Rouwhorst (1) (presenting author), Phuong H. Nguyen (1), Sloopweg Han (1,2)

1 Eindhoven University of Technology, Eindhoven, Netherlands

2 Enexis Netbeheer, 's-Hertogenbosch, Netherlands

A8832LB

Seasonal Performance of Fitted Q-iteration for Space Heating and Cooling with Heat Pumps

Lucas Bex (1,2) (presenting author), Thijs Peirelinck (1,2), Geert Deconinck (1,2)

1 KU Leuven, Leuven, Belgium

2 EnergyVille, Genk, Belgium

A9011MB

Impact of Heat Pump Electrification in Distribution Grids through a Socio-technical Approach

Matteo Barsanti (1) (presenting author), Debopama Sen Sarma (2), Claudia Binder (1), Christian Rehtanz (2)

1 Laboratory on Human-Environment Relations in Urban Systems, EPFL, Lausanne, Switzerland

2 Institute of Energy Systems, Energy Efficiency and Energy Economics, TU Dortmund, Dortmund, Germany

A8894CM

Clustering methods to select representative days for heat pumps optimal operation accounting for electricity grid constraints

Célia Masternak (1) (presenting author), Cécile Begassat-Piquet (1), Clémence Lévêque (1), Simon Meunier (1), Vincent Reinbold (1), Dirk Saelens (3,4), Claude Marchand (1)

1 Université Paris-Saclay, CentraleSupélec, Sorbonne University, CNRS, GeePs, Gif-sur-Yvette, France

2 CentraleSupélec, Gif-sur-Yvette, France

3 KU Leuven, Dept. of Civil Eng., Building Physics Sustainable Design, Leuven, Belgium

4 EnergyVille, Genk, Belg

A9082RA

Electrolyzers Heat Capture Study for a Wind Farm

Ramin Ahmadi Kordkheili (1) (presenting author), Reza Ahmadi Kordkheili (2), Matti Lehtonen (1), Mahdi Pourakbari-Kasmaei (1)

1 Aalto University, Espoo, Finland

2 Vattenfall vindkraft A/S, Kolding, Denmark



A9040LS

On the impact of heat pump installations and peak blocking strategies on grid expansion costs

Leo Semmelmann (1) (presenting author), Schmid Daniel (1), Sarah Henni (1), Anya Heider (2,3), Birgit Schachler (2), Christof Weinhardt (1)

1 Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany

2 Reiner Lemoine Institut gGmbH, Berlin, Germany

3 Eidgenössische Technische Hochschule Zürich (ETH), Zurich, Switzerland

Tuesday 24 October 2023

14:30-16:00

Energy management systems and load growth

Makalu

PAPER PRESENTATION

Chair : Dr. Ali Arabnya, (Director at Quanta Technology / Research Prof. at Univ. of Denver, USA)

A9068AP

The Impacts of the Uncertainty in Demand Growth and Load Models on Distribution Network Operation

Airam Perez Guillen (1) (presenting author), Ester Thomas Marcel (1), Saad A. Alyoubi (1), Jovica V. Milanovic (1), Shengji Tee (2)

1 The University of Manchester, Manchester, United Kingdom

2 Scottish Power Energy Networks, Glasgow, United Kingdom

A9069SA

The Influence of Load Growth Scenarios on Distribution Network Operation

Saad Alyoubi (1) (presenting author), Airam Perez Guillen (1), Ester Thomas Marcel (1), Jovica Milanovic (1), Tee Shengji (2)

1 The University of Manchester, Manchester, United Kingdom

2 Scottish Power Energy Networks, Glasgow, United Kingdom

A9010DS

A Distributed Framework for Agent-based Optimal Energy Management of Distribution Systems

Debopama Sen Sarma (1) (presenting author), Sebastian Peter (1), Christian Rehtanz (1)

1 TU Dortmund, Dortmund, Germany

A8851YZ

Optimal Energy Management for Multi-Microgrid System Based on Stackelberg Game

Yingrui Zhuang (1) (presenting author), Lin Cheng (1), Ning Qi (1), Hongtao Li (2), Zijin Li (2), Chen Wang (2)

1 Tsinghua University, Beijing, China

2 State Grid Beijing Electric Power Co., Ltd., Beijing, China

A9076YS

A Robust Energy Management Controller for Microgrid Operations Considering Generator's Feasibility and Energy Trading

Yutaka Sasaki (1) (presenting author), Yuki Uesugi (1), Naoto Yorino (1), Yoshifumi Zoka (1), Kihembo Samuel Mumbere (1), Chiraz Krifa (1), Shinya Sekizaki (1), Bedawy Ahmed (1)

1 Hiroshima University, Higashi-Hiroshima, Japan

A8950SR

Towards Safe Model-Free Building Energy Management using Masked Reinforcement Learning

Sharath Ram Kumar (1,2) (presenting author), Remy Rigo-Mariani (1), Benoit Delinchant (1), Arvind Easwaran (2)

1 Univ. Grenoble Alpes, CNRS, Grenoble INP, G2Elab, Grenoble, France

2 Nanyang Technological University, Singapore, Singapore



A8813NL

Residential demand-side flexibility provision under a multi-level segmented tariff

Na Li (1), Kenneth Bruninx (1), Simon Tindemans (1), Zofia Lukszo (1) (presenting author)

1 Delft university of technology, DELFT, Netherlands

Tuesday 24 October 2023

16:30-18:00

Cybersecurity

MontBlanc 1-2

PAPER PRESENTATION

Chair : Prof. Jovica Milanovic (Univ. of Manchester / F.IEEE, UK)

A9132MG

Impact of Cyberattacks Targeting Distributed Photovoltaic Inverters

Marta Gomis Domènech (1) (presenting author), Yassine Naimi (1), Xavier Le Pivert (1)
1 CEA, Le Bourget du Lac, France

A9070MA

Motif-Based Reliability Analysis for Cyber-Physical Power Systems

Hamed Binqadhi (1), Mohammad AlMuhaini (1) (presenting author), H. Vincent Poor (2), Hao Huang (2)
1 King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia
2 Princeton University, Princeton, United States

A8795KK

Coordinated cyber attacks on smart grids considering software supply chains

Kirill Kuroptev (1) (presenting author), Florian Steinke (1)
1 Technical University of Darmstadt, Darmstadt, Germany

A9059AJ

Set-point Adjustment Attacks on Under Frequency Load Shedding Relays: A Risk Assessment Study

Amirreza Jafari Anarjan (1) (presenting author), Hakan Ergun (1), Dirk Van Hertem (1)
1 KU Leuven, Leuven, Belgium

A9030HB

Cybersecurity Resilient for Quartile-based Transformer Differential Protection Scheme

Het Bhalja (1) (presenting author), Bhaveshkumar Bhalja (1), Pramod Agarwal (1)
1 Indian Institute of Technology Roorkee, Roorkee, India

A9075SP

Cyber-Secured Distributed Control System for Reliable AC Microgrids

Smitha Joyce Pinto (1) (presenting author), Gayadhar Panda (2)
1 Maharaja Institute of Technology Mysore, Mysore, India
2 National Institute of Technology Meghalaya, Shillong, India

Tuesday 24 October 2023

16:30-18:00

Simulation VS real world

MontBlanc 3-4

PAPER PRESENTATION

Chair : Prof Hongye Guo (Tsinghua Univ., Dpt of Electrical Engineering, China)

A8858PP

A Time Efficient Factorial Hidden Markov Model Based Approach for Non-Intrusive Load Monitoring

Partik Partik Kumar (1) (presenting author), Abhijit R. Abhyankar (1)

1 Indian Institute of Technology Delhi, New Delhi, India

A9099RM

gritulator: Grid Converter Simulator in Python

Rayane Mourouvin (1) (presenting author), Jarno Kukkola (1), Lauri Tiitinen (1), Marko Hinkkanen (1)

1 Aalto University, Espoo, Finland

A8854PP

Mixed Integer Quadratic Programming and Change-Point Detection based Framework for Non-Intrusive Load Monitoring

Partik Kumar (1) (presenting author), Abhijit R. Abhyankar (1)

1 Indian Institute of Technology Delhi, New Delhi, India

A8867AP

Towards a Modular Digital Twin Microservice Architecture for Urban Multi-Energy Systems

Alexander Pastor (1) (presenting author), Sebastian Alexander Uerlich (1), Sebastian Schwarz (1), Antonello Monti (1,2)

1 RWTH Aachen University, Aachen, Germany

2 Fraunhofer FIT, Aachen, Germany

A7351AO

Applications of Digital Twins for Demand Side Recommendation Scheme with Consumer Comfort Constraints

Abiodun Onile (1) (presenting author), Juri Belikov (1), Eduard Petlenkov (1), Yoash Levron (1)

1 Tallinn University of Technology, Tallinn, Estonia

A8814NN

System Level Modeling of Electrolyzers for Digital Real-Time Applications

Nils Nemsow (1) (presenting author), Giovanni De Carne (1)

1 Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Tuesday 24 October 2023

16:30-18:00

Hydrogen for the power system

Everest

PAPER PRESENTATION

Chair : Dr. Zhenyu Huang (Assoc. Prof. at Tsinghua Univ., Dpt of Electrical Engineering, China)

A89950P

Risk-conscious asset sizing and energy procurement planning for an electrolytic hydrogen producer.

Owen Palmer (1,2) (presenting author), Hugo Radet (2), Simon Camal (1), Robin Girard (1)

1 Mines Paris - PSL University, Sophia Antipolis, France

2 Verso Energy, Paris, France

A8915AJ

Hydrogen production via electrolysis in 2030: comparing four connection schemes through energy system optimization.

Anaëlle Jodry (1) (presenting author), Robin Girard (1), Pedro Henrique Affonso Nobrega (1), Robin Molinier (2), Moulay-Driss Elalaouifaris (2)

1 Mines Paris - Centre for Processes, Renewable Energy and Energy Systems (PERSEE), Sophia Antipolis, France

2 Air Liquide Research & Development, Paris Innovation Campus, Les Loges-en-Josas, France

A8775MF

Impact of Landing Interruptions on the Optimal Design and Operation of Green Hydrogen Hubs

Markus Fleschutz (1,2,3) (presenting author), Daniel Bull (2), Marco Braun (2), Michael D. Murphy (1)

1 Munster Technological University, Cork, Ireland

2 Karlsruhe University of Applied Sciences, Karlsruhe, Germany

3 Entelios AG, Munich, Germany

A8714N

The Impact of Providing Balancing Services with Electrolyzers on Power and Hydrogen Balancing Responsible Groups

Nikolina Covic (1) (presenting author), Ivan Pavic (2), Hrvoje Pandzic (1)

1 University of Zagreb Faculty of Electrical Engineering and Computing, Zagreb, Croatia

2 University of Luxembourg Interdisciplinary Centre for Security, Reliability and Trust, Luxembourg, Luxembourg

A8926MS

Switchable fuel cell electrolysis system for grid-related purposes using real bus depot data

Maximilian Schifferdecker (1), Dennis Hamann (1) (presenting author), Detlef Schulz (1)

1 Helmut-Schmidt-Universität / Universität der Bundeswehr Hamburg, Hamburg, Germany



A9063TS

Power-to-gas: value-stacking by waste-heat utilization and curtailment prevention

Thomas Swarts (1) (presenting author), Johan Morren (1), Wouter van den Akker (1), Arjan van Voorden (2,3), Han Slootweg (1)

1 Eindhoven University of Technology, Eindhoven, Netherlands

2 Stedin, Rotterdam, Netherlands

3 Delft University of Technology, Delft, Netherlands

Tuesday 24 October 2023

16:30-18:00

Batteries for the power system 2

Makalu

PAPER PRESENTATION

Chair : Prof. Geert Deconinck (KU Leuven/EnergyVille, Belgium)

A8822NG

Balanced Multiple Battery Energy Storage System for Congestion Management: RTE's algorithms for RINGO project

Nicolo Gionfra (1) (presenting author), Jean Maeght (1), Ghiles Abdellah (1), Sylvain Epaillard (1)
1 RTE, Paris, France

A9067ZL

Maximizing Power Dispatch of Wind-Storage System with Dynamic Thermal Rating Considering Battery Degradation Costs

Zhongtian Li (1) (presenting author), Patrik Hilber (1), Stefan Ivanell (2), Tor Laneryd (3)
1 KTH royal institute of technology, Stockholm, Sweden
2 Wind Energy Campus Gotland, Uppsala University, Visby, Sweden
3 Hitachi Energy Research, Västerås, Sweden

A9133JM

A Hybrid Energy Storage System for flexibility provision: Modelling and Control design.

Jemma J. Makrygiorgou (1,2), Despoina I. Makrygiorgou (1,2), Serafeim Panidis (1) (presenting author), Christos Dikaiakos (1), Jun Rong (1), Antonio T. Alexandridis (2)
1 Independent Power Transmission Operator, Athens, Greece
2 Department of Electrical and Computer Engineering, University of Patras, Patras, Greece

A8909AM

Valuation Models for Frequency Services Provision with an Energy Storage System

Ahmed Mohamed (1) (presenting author), Rémy RIGO-MARIANI (1), Vincent DEBUSSCHERE (1), Lionel PIN (2)
1 university grenoble alpes, Grenoble, France
2 Atos Worldgrid Solutions for Energy and Utilities, Grenoble, France

A8862NQ

Capacity Credit Evaluation of Generic Energy Storage under Decision-dependent Uncertainty

Ning Qi (1) (presenting author), Lin Cheng (1), Hongtao Li (2), Yingrui Zhuang (1), Liang Hao (2), Feng Liu (1)
1 Department of Electrical Engineering, Tsinghua University, Beijing, China
2 State Grid Beijing Electric Power Company, Beijing, China

A9150IM

Levelized Cost of Storage for Hybrid Energy Storage Systems with Fast Response Capabilities for Energy Arbitrage and Fast Frequency Response

Ioannis Moschos (1) (presenting author), Nikolaos Koltsaklis (1), Konstantinos Oureilidis (1), Constantinos Parisses (1), Georgios Christoforidis (1)
1 Department of Electrical and Computer Engineering, University of Western Macedonia, Kozani, Greece

Wednesday 25 October 2023

8:30-10:00

Resilience 1 : climate and extreme weather events

MontBlanc 1-2

PAPER PRESENTATION

Chair : Prof. Costas Vournas (National Technical Univ. of Athens, Greece)

A8589ID

Grid Restoration After Extreme Weather Events

Svetlana Ekisheva (2) (presenting author), Donna Pratt (2), Maria Kachadurian (2), William Martin (2), Jack Norris (2), Ian Dobson (1)

1 Iowa State University, Ames, United States

2 North American Electric Reliability Corporation, Atlanta, United States

A8874XW

Weather Event Preparedness Modelling for Distribution Systems

Xavier Weiss (1) (presenting author), Lars Nordström (1), Patrik Hilber (1), Arvid Rolander (1)

1 KTH, Stockholm, Sweden

A9098AP

Assessing the vulnerability of overhead line wires to flashovers due to reduced insulation distances for power system resilience studies

Emanuele Ciapessoni (1), Diego Cirio (1), Andrea Pitto (1) (presenting author), Silverio Casulli (2), Federico Falorni (2), Francesca Scavo (2)

1 Ricerca sul Sistema Energetico RSE S.p.A., Milan, Italy

2 Terna Corporate S.p.A., Rome, Italy

A8584LP

reXplan: A Novel Tool for the Analysis of Climate Resilience in Power Systems

Luca Pizzimbone (1) (presenting author), Firas Belhaj Jrad (1)

1 Tractebel Engineering GmbH, Bad Vilbel, Germany

A9090HN

Integrating sustainability and resilience aspects into power system technology assessments

Henrik Netz (1) (presenting author), Ingo Schönwandt (2), Henning Wigger (1), Urte Brand-Daniels (1), Daniel Lichte (2), Thomas Vogt (1)

1 German Aerospace Center- Institute of Networked Energy Systems , Oldenburg, Germany

2 German Aerospace Center- Institute for the Protection of Terrestrial Infrastructure , St. Augustin, Germany

A8785EK

A Monte Carlo sampling procedure for rare events applied to power system reliability analysis

Erlend Sandø Kiel (1) (presenting author), Gerd Hovin Kjølle (1)

1 SINTEF Energy, Trondheim, Norway

Wednesday 25 October 2023

8:30-10:00

Ancillary services

MontBlanc 3-4

PAPER PRESENTATION

Chair : Dr. Matthew Deakin (Royal Academy of Engineering Research Fellow at Newcastle Univ., UK)

A9139LH

Ancillary Services Prioritization in Inverters with Virtual Synchronous Generator Functionalities

Eleni Tekki (1), Lenos Hadjidemetriou (1) (presenting author), Manuel Barragan-Villarejo (2), Francisco Jesus Matas-Diaz (2), Jose Maria Maza-Ortega (2), Antonio Gomez-Expósito (2), Marios Polycarpou (1)

1 KIOS Research and Innovation Center of Excellence and Dept. of Electrical and Computer Engineering, University of Cyprus, NICOSIA, Cyprus

2 Department of Electrical Engineering, Universidad de Sevilla, Seville, Spain

A8905LO

Deployment of an Online Feedback Optimization Controller for Reactive Power Flow Optimization in a Distribution Grid

Lukas Ortmann (1) (presenting author), Christian Rubin (1), Alessandro Scozzafava (2), Janick Lehmann (2), Saverio Bolognani (1), Florian Dörfler (1)

1 ETH Zurich, Zurich, Switzerland

2 AEW Energie AG, Aarau, Switzerland

A8804DK

A low voltage ride through (LVRT) strategy using an active superconductor fault current limiter (SFCL) for a virtual synchronous generator (VSG) connected to a weak grid

Daniel Kisinga (1) (presenting author), Paul Trodden (1)

1 The University of Sheffield, Sheffield, United Kingdom

A9077AN

Design of Adaptive Control Scheme for Provision of Frequency Regulation Service from Electric Vehicle Fleet

Angshu Nath (1) (presenting author), Zakir Rather (1)

1 Indian Institute of Technology Bombay, Mumbai, India

A9123MU

Taking advantage of PV systems for multi-period optimal reactive power dispatch: A Convex Optimization Approach

Mario Useche (1,2), Lacerda Vinicius (1,2) (presenting author), Oriol Gomis (1,2), Cheah Marc (1,2)

1 Technical University of Catalonia, Barcelona, Spain, Spain

2 CITCEA, Barcelona, Spain, Spain

A8845YZ

A Review on Mathematical Modelling of Reactive Power Ancillary Service Market

Yunyang Zou (1) (presenting author), Yan Xu (1), Qiaoqiao Li (1)

1 Nanyang Technological University, Singapore, Singapore

Wednesday 25 October 2023

8:30-10:00

Problem uncertainties

Everest

PAPER PRESENTATION

Chair : Dr. Roman Le Goff-Latimier (Assoc. Prof. at SATIE, ENS Rennes, France)

A8859MA

Assessment of Forecasting-Aided State Estimation Under Measurement Errors and Topology Changes

Malek Alduhaymi (1) (presenting author), Ravindra Singh (2), Bikash Pal (1)

1 Imperial College London, London, United Kingdom

2 Argonne National Laboratory, Lemont, IL, United States

A9012ZV

Hourly uncertainty in optimal expansion planning considering energy storage and seasonal impacts

Fabio Castro (1), Bruno Canizes (1) (presenting author), João Soares (1), Zita Vale (1)

1 Polytechnic of Porto, Porto, Portugal

A8754EM

Efficient Probabilistic Assessment of the Impact of Renewable Generation on Annual Steady State Performance of Distribution Network

Ester Marcel (1) (presenting author), Jovica Milanovic (1)

1 The University of Manchester, Manchester, United Kingdom

A8587HS

A Decision-Dependent Chance-Constrained Planning Model for Distribution Networks Under Extreme Weather Events

Anping Zhou (2), Hongbo Sun (1) (presenting author), Shoichi Kitamura (3), Daniel Nikovski (1)

1 Mitsubishi Electric Research Laboratories, Cambridge, United States

2 Southern Methodist University, Dallas, United States

3 Mitsubishi Electric Corporation, Amagasaki, Japan

A9083HC

Applying Bayesian Approach in Real-Time Monitoring of Converter-Driven Oscillation

Hock-Lim Cheng (1) (presenting author), Siu-Kui Au (3), Janne Seppänen (2), Matti Lehtonen (2)

1 Fingrid, Helsinki, Finland

2 Aalto University, Espoo, Finland

3 Nanyang Technological University, Singapore, Singapore

A9093FS

Statistics-informed bounds for active distribution network equivalents subject to large disturbances

Frédéric Sabot (1) (presenting author), Pierre Henneaux (1), Ifigeneia Lamprianidou (2), Panagiotis Papadopoulos (2)

1 Université libre de Bruxelles, Bruxelles, Belgium

2 University of Strathclyde, Glasgow, United Kingdom

Wednesday 25 October 2023

8:30-10:00

Flexibilities 1

Makalu

PAPER PRESENTATION

Chair : Prof. Jovica Milanovic (Univ. of Manchester / F.IEEE, UK)

A8643FL

Contribution of Conventional Demand Response Resources to Peak Shaving of Power Substations

François Laurencelle (1) (presenting author), Michaël Fournier (1), Charles Desbiens (2), Daniel Chabot (2)

1 Centre de recherche d'Hydro-Québec, Shawinigan, Canada

2 Hydro-Québec, Montréal, Canada

A8680PS

Demand Response From Steelmaking Process Coordinated With Energy Storage Systems

Pengfei Su (1) (presenting author), Yue Zhou (1)

1 Cardiff University, Cardiff, United Kingdom

A8673SN

Unlocking Building Flexibility Considering Minimum Comfort Level and Energy Bill

Saman Nikkhah (1) (presenting author), Adib Allahham (2), Sara Walker (1), Damian Giaouris (1)

1 Newcastle University, Newcastle upon Tyne, United Kingdom

2 Northumbria University, Newcastle upon Tyne, United Kingdom

A9013ZV

Demand Response-based Energy Management Model for Energy Communities considering Data Privacy of the Members

Ruben Barreto (1), Luis Gomes (1), Zita Vale (1) (presenting author)

1 Polytechnic of Porto, Porto, Portugal

A9055GF

Multi-Level Traffic Light Signals Integrating Energy Market and Grid Needs

Gerald Franzl (1) (presenting author), Stefan Wilker (2), Thilo Sauter (1,2)

1 University for Continuing Education Krems, 2700 Wiener Neustadt, Austria

2 TU Wien, 1040 Vienna, Austria

A8709RL

LSTN: A Linear Model of Industrial Production Process for Demand Response

Ruike Lyu (1) (presenting author), Hongye Guo (1), Yuanjie Zheng (2), Yunlong Bai (3), Qixin Chen (1)

1 Department of Electrical Engineering, Tsinghua University, Beijing, China

2 State Grid Corporation of China, Beijing, China

3 State Grid Anhui Electric Power Co., Ltd., Hefei, China

Wednesday 25 October 2023

8:30-10:00

Electric vehicles 2

Auditorium

PAPER PRESENTATION

Chair : Prof. Bruno François (L2EP-Centrale Lille, France)

A8808GC

A Computational Implementation for Creating Electric Vehicles Profiles

Guzman Lascano Cindy Paola (1) (presenting author), Gomes Eduardo (1,2), Pereira Lucas (1,2), Morais Hugo (1)
1 INESC-ID-Instituto de Engenharia de Sistemas e Computadores-Investigação e Desenvolvimento, Department of Electrical and Computer Engineering, Instituto Superior Técnico-IST, Universidade de Lisboa, Lisbon, Portugal
2 Department of Electrical and Comput

A8821PD

Reducing Marginal Emissions of an Electric Vehicle Fleet through Smart Charging and Vehicle-to-grid

Pierre Dumont (1,2) (presenting author), Marc Petit (1), Damien-Pierre Sainflou (2)
1 GeePs, Gif-sur-Yvette, France
2 Stellantis, Carrières-sous-Poissy, France

A9166RP

Deployment and sizing of EVCS clusters with RES and BESS from the network operator's perspective

Ricardo Pastor (1) (presenting author), Alexandre Gouveia (1), Nuno Fulgêncio (1), Gonçalo Glória (1), Yuyang Li (2), Xiangjun Li (2)
1 R&D NESTER - Centro de Investigação em Energia REN - State Grid, S.A., Sacavém, Portugal
2 China Electric Power Research Institute, Beijing, China

A9060PD

Smart Opportunity Charging Strategy for Electric Buses

Payal Dahiwalé (1) (presenting author), Zakir Rather (1), Amita Kumari (1)
1 Indian Institute of Technology Bombay, Mumbai, India

A9017NK

Charging management of EVs in smart grid for Cost Minimization

Mithra Vinda Reddy (1), Sarvesh Babu R G (1), Shwetha S (1), Sivasankari GS (1), NARAYANAN K (1) (presenting author), Anurag Sharma (2), Alexander Aguila Tellez (3)
1 Dept. of EEE, SASTRA DEEMED TO BE UNIVERSITY, THANJAVUR, India
2 Department of Electrical Power Engineering, NEWCASTLE UNIVERSITY, SINGAPORE, SINGAPORE, Singapore
3 Universidad Politécnica Salesiana, QUITO, Ecuador



A8847HA

Optimal Day-Ahead Transport and Charge Scheduling of Autonomous Electric Vehicle Fleet using Local Renewable Energy Generation

Haider Ali (1,2) (presenting author), Bruno Francois (1), Luce Brotcorne (2)

1 L2EP - Ecole Centrale de Lille, Lille, France

2 INOCS - INRIA, Lille, France

Wednesday 25 October 2023

14:30-16:00

Resilience 2

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Martha Symko-Davies (Laboratory Program Manager for Energy Systems Integration, NREL, USA)

A9170KS

Exploring data collection and fusion of medium voltage cable failures - A Danish case study

Konrad Sundsgaard (1,2) (presenting author), Jens Zoëga Hansen (1), Guangya Yang (2), Massimo Cafaro (3), Peter Kjær Hansen (1)

1 Green Power Denmark , Copenhagen , Denmark

2 Technical University of Denmark (DTU), Copenhagen , Denmark

3 University of Salento, Lecce, Italy

A8710TP

Residual Signature Analysis for Wind Turbine Failure Prognosis

Topon Paul (1) (presenting author), Vidhisha Reddy (2), Sai Prem Kumar Ayyagari (2), Kaneharu Nishino (1)

1 Toshiba Corporation, Kanagawa , Japan

2 Toshiba Software (India) Pvt. Ltd., Bangalore, India

A8836OS

Benchmark Evaluation of Anomaly-Based Intrusion Detection Systems in the Context of Smart Grids

Ömer Sen (1,2) (presenting author), Simon Glomb (2), Martin Henze (3,4), Andreas Ulbig (1,2)

1 Fraunhofer FIT, Sankt Augustin, Germany

2 RWTH Aachen University IAEW, Aachen, Germany

3 RWTH Aachen University SPICE, Aachen, Germany

4 Fraunhofer FKIE, Wachtberg, Germany

A9131AG

A Network Reduction Method for the Distribution Network Reconfiguration Problem

Aghyles Graine (1,2), Nour Karnib (3) (presenting author), Emmanuel Grolleau (3), Antoine Bertout (1), Didier Larraillet (2), Jean-Paul Gaubert (1)

1 Université de Poitiers, Poitiers, France

2 SRD, Poitiers, France

3 École nationale supérieure de mécanique et d'aérotechnique (ENSMA), Poitiers, France

A8919TB

Encrypted Traffic Classification for Early-Stage Anomaly Detection in Power Grid Communication Network

Tohid Behdadnia (1) (presenting author), Can Ozkan (2), Dave Singelee (2), Geert Deconinck (1)

1 KU Leuven-EnergyVille, Leuven, Belgium

2 KU Leuven-COSIC, Leuven, Belgium



A9066CJ

Powering Europe's Energy Transition: Financial Viability of a Full-Scale Meshed HVDC Grid and Hybrid Offshore Assets in the North Sea

Chandra kant Jat (1,2), Stephen David William Hardy (1,2) (presenting author), Jay Dave (3), Hakan Ergun (1,2), Dirk Van Hertem (1,2)

1 KU Leuven, Leuven, Belgium

2 EnergyVille , Genk, Belgium

3 Siemens AG, Erlangen, Germany

Wednesday 25 October 2023

14:30-16:00

Protections and faults

MontBlanc 3-4

PAPER PRESENTATION

Chair : Dr. Jochen L. Cremer (Delft Univ. of Technology, Netherlands)

A8872JM

Isolated Hybrid System Protection Performance: A Study Case in Island S

Joko Muslim (1,2), Amiruddin Amiruddin (1) (presenting author), Teguh Kuniyanto (1), Dhandis Rito Jintaka (1), Hikmah Prasetya (1), Didik Dauzi Dakhlan (1)

1 PLN Indonesia, Jakarta, Indonesia

2 IT PLN, Jakarta, Indonesia

A8794FB

Development of a rotary reluctance actuator for active condition monitoring of mechanically driven medium voltage circuit breakers

Felix Boy (1) (presenting author), Arda Tüysüz (1), Gianluca Cortinovis (2), Alessandro Stucchi (2)

1 ABB, Mannheim, Germany

2 ABB, Dalmine, Italy

A9042TS

5G Communication Infrastructure for Smart Grids: A Protection Use Case

Talal Saleh (1) (presenting author), Petri Välisuo (1), Kimmo Kauhaniemi (1), Mohammed Elmusrati (1)

1 University of Vaasa, Vaasa, Finland, Finland

A9024LQ

A Sensor Fault Detection and Imputation Framework for Electrical Distribution Grids

Lars Quakernack (1) (presenting author), Valerie Vaquet (2), Barbara Hammer (2), Jens Haubrock (1)

1 Hochschule Bielefeld - University of Applied Sciences and Arts, Bielefeld, Germany

2 Bielefeld University, Bielefeld, Germany

A8743TH

Development of a Directional Element for Solar Inverter-Rich Distribution Networks

Tran The Hoang (1) (presenting author), Nirmal-Kumar C. Nair (1)

1 The University of Auckland, Auckland, New Zealand

A9184AB

A reliability-based optimal number of PMUs for profitable fault location on MV feeders

Alexandre Bach (1) (presenting author), Trung Dung Le (1), Marie-Cécile Alvarez-Hérault (2), Marc Petit (1)

1 Geeps Centralesupelec, Gif sur Yvette, France

2 G2ELAB University Grenoble Alpes, Grenoble, France

Wednesday 25 October 2023

14:30-16:00

Load and solar power forecasting

Everest

PAPER PRESENTATION

Chair : Prof. George Kariniotakis (Mines Paris, PSL University, France)

A8830HN

Day ahead PV output power forecasting utilizing boosting recursive LightGBM-LSTM framework

Hossein Nourollahi Hokmabad (1) (presenting author), Oleksandr Husev (1), Dmitri Vinnikov (1), Juri Belikov (1), Eduard Petlenkov (1)

1 Tallinn University of Technology, Tallinn, Estonia

A9101SM

Maximum Available Power Estimation in Solar Photovoltaic Power Plants Using Reference Inverters: A Critical Assessment

Soudipan Maity (1) (presenting author), Zakir Hussain Rather (1), Suryanarayana Doolla (1)

1 Indian Institute of Technology Bombay, Mumbai, India

A8764PD

Probabilistic Forecasting of Current Harmonic Distortions in Distribution Systems

Antonio Bracale (1), Pierluigi Caramia (1), Pasquale De Falco (1) (presenting author), Max Domagk (2), Jan Meyer (2)

1 University of Naples Parthenope, Naples, Italy

2 Technische Universitaet Dresden, Dresden, Germany

A9156LC

Prosumers Energy Consumption Forecasting: Leveraging LSTM and XGBOOST with Spatial and Weather Features

Lan Chu (1), Sepideh Kia (2), Robert Sokolewicz (3) (presenting author), Johan Morren (2)

1 Rabobank, Den Haag, Netherlands

2 Eindhoven University of Technology, Eindhoven, Netherlands

3 Delft University of Technology, Delft, Netherlands

A9085RZ

Day-Ahead Solar Irradiance Forecasting using a Hybrid Weather-Based Attention BiLSTM Approach for Power System Operation Scheduling

Rehman Zafar (1) (presenting author), Il-Yop Chung (1)

1 School of Electrical Engineering, Kookmin University, Seoul, Korea (Republic of)

A8841YB

Electricity Demand Forecasting through Natural Language Processing with Long Short-Term Memory Networks

Yun Bai (1) (presenting author), Simon Camal (1), Andrea Michiorri (1)

1 the Centre for Processes, Renewable Energies and Energy Systems (PERSEE), MINES Paris - PSL University, Sophia Antipolis, France

Wednesday 25 October 2023

14:30-16:00

Microgrid 1 : protection and stability

Makalu

PAPER PRESENTATION

Chair : Dr. Jérôme Buire (Assoc. Prof. at Grenoble INP | Univ. Grenoble Alpes, France)

A8991JM

Large-Signal Stability of Inverter-Based LV Microgrids: Share of Grid-Forming Units

Jane Marchand (1) (presenting author), Jérôme Buire (1), Vincent Debusschere (1), Nabil El Jarrai (2), Jean Pompee (2), Nouredine Hadjsaid (1)

1 Univ. Grenoble Alpes, CNRS, Grenoble INP**, G2Elab, F-38000 Grenoble, France ** Institute of Engineering Univ. Grenoble Alpes, Grenoble, France

2 Enedis, Paris, France

A8788LC

Comparison of Losses and Costs between AC and MVDC Connections for New DC Resources

Laurent Cornaggia (1,2) (presenting author), Robin Girard (2), Olivier Despouys (1), Hélène Clémot (1), Panagiotis Andrianesis (3)

1 RTE, Paris, France

2 Mines Paris - PSL University, Paris, France

3 Technical University of Denmark, Lyngby, Denmark

A9002LZ

Feedback-based AC OPF Integrating a Model Predictive Control Strategy for Optimal Operation of Microgrids

Linan Zhang (1) (presenting author), Anastasios Oulis Rousis (1), Goran Strbac (1)

1 Imperial College London, London, United Kingdom

A8780MM

Improved redundancy of an islanded microgrid via seamless transition between operation modes

Matheus Montanini Breve (1,2) (presenting author), Gabriele Michalke (1), Bernd Bohnet (1), Julia Kowal (2), Kai Strunz (2)

1 Robert Bosch GmbH, Renningen, Germany

2 Technical University of Berlin, Berlin, Germany

A8870TM

Dual-Layer Based Microgrid Protection Using Voltage Synchrophasors

Thiago S. Menezes (1) (presenting author), Ricardo A.S. Fernandes (2), Denis V. Coury (1)

1 University of São Paulo, São Carlos, Brazil

2 Federal University of São Carlos, São Carlos, Brazil

Wednesday 25 October 2023

16:30-18:00

Artificial intelligence 3

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Pedro Vergara Barrios (Delft Univ. of Technology, Netherlands)

A8815NJ

AI Driven Near Real-time Locational Marginal Pricing Method: A Feasibility and Robustness Study

Naga Venkata Sai Jitin Jami (1,2) (presenting author), Juraj Kardos (1), Olaf Schenk (1), Harald Koestler (2)

1 Università della Svizzera italiana, Lugano, Switzerland

2 Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany

A8962NH

Artificial Intelligence for Determining the Cause of low Voltage due to insufficient Reactive Power Provision in the Transmission System

Nadja Isabelle Hiersemann (1) (presenting author), Florian Sass (2), Dirk Westermann (1)

1 Technische Universität Ilmenau, Ilmenau, Germany

2 50Hertz Transmission GmbH, Neuenhagen, Germany

A9178OK

Optimization and Scalability of Blockchain Enabled Demand Response Smart Contracts using Sharding and Neural Networks

Ondrea Kanwhen (1) (presenting author), Jatin Jain (1), Ahmed Mohamed (1)

1 City College of New York, New York, United States

A9025PF

Explainable Artificial Intelligence for Definition of Inputs in Neural Networks and K-nearest Neighbors Forecasting of Electricity Consumption

Daniel Ramos (1), Pedro Faria (1) (presenting author), Zita Vale (1)

1 Polytechnic of Porto, Porto, Portugal

A9018SH

Data Science Challenges; A Whole Systems Lens for Energy Network Solutions

Stephen Haben (1) (presenting author), Sam Young (1), Liam McSweeney (2)

1 Energy Systems Catapult, Birmingham, United Kingdom

2 National Grid Electricity Distribution, Bristol, United Kingdom

A8672AB

Using domain-augmented federated learning to model thermostatically controlled loads

Attila Balint (1) (presenting author), Haroon Raja (2), Johan Driesen (1), Hussain Kazmi (1)

1 KU Leuven, Leuven, Belgium

2 Tufts University, Medford, United States

Wednesday 25 October 2023

16:30-18:00

Power electronics

Kilimandjaro 3-4

PAPER PRESENTATION

Chair : Dr. David Frey (Assoc. Prof. at Grenoble INP | Univ. Grenoble Alpes, France)

A8646AS

Control and Sizing of Back-to-Back Converter in Interconnected Microgrids

Ahmed Sunjaq (1) (presenting author), Peiyuan Chen (1), Massimo Bongiorno (1), Ritwik Majumder (1), Jan R Svensson (2)
1 Chalmers University of Technology, Göteborg, Sweden
2 Hitachi Energy, Västerås, Sweden

A8957PO

Reducing electrical losses in buildings: a study of load-side dc/dc converter topologies for low-power appliances

Patrik Ollas (1,2), Torbjörn Thiringer (2), Niclas Samuelsson (3), Ahmed Sunjaq (2) (presenting author)
1 RISE Research Institutes of Sweden, Borås, Sweden
2 Chalmers University of Technology, Gothenburg, Sweden
3 Plejd AB, Gothenburg, Sweden

A8685JW

Experimental Analysis of Immersion & Invariance Adaptive Control for an Interleaved DC/DC Boost Converter with Unknown Load Type

Jan Wachter (1) (presenting author), Lutz Gröll (1), Veit Hagenmeyer (1)
1 Karlsruhe Institut of Technology, Karlsruhe, Germany

A8634TS

Evaluation of Countermeasures against Voltage Flicker in Photovoltaic Inverters

Tomoaki Shoji (1) (presenting author), Naoyuki Sasaki (1), Masahiko Hasegawa (1), Toshifumi Karasawa (1), Satoru Akagi (2), Ryota Yamamoto (2)
1 Tokyo Electric Power Company Holdings, Inc., Kanagawa, Japan
2 Tokyo Electric Power Company Power Grid, Inc., Tokyo, Japan

A9053AH

Control Strategy for a Triple Active Bridge Converter: a Generalized Average Model Approach

Andrés Camilo Henao-Muñoz (1) (presenting author), Antonio Pepicciello (1), José Luis Domínguez-García (1)
1 Catalonia Energy Research Institute, Barcelona, Spain

A9165JS

Polynomial Fitting of Operating Point Dependency in Small-Signal State-Space Models for Power Electronic Converters

Lisa Reis (2,3) (presenting author), Andrew Maxmillian Smith (1), Salvatore D'Arco (1), Jon Are Suul (1,2)
1 SINTEF Energy Research, Trondheim, Norway
2 Department of engineering cybernetics, Norwegian University of Science and Technology, Trondheim, Norway
3 Technical University of Kaiserslautern, Kaiserslautern, Germany

Wednesday 25 October 2023

16:30-18:00

Hardware in the loop

MontBlanc 3-4

PAPER PRESENTATION

Chair : Dr. Thai-Phuong Do (CEA, France)

A9164Sk

P-HIL Validation for Double Loop Proportional Control in abc Stationary Frame for Grid Forming Inverter

Samuel kamajaya (1,2) (presenting author), Jerome BUIRE (2), Raphael CAIRE (2), Seddik BACHA (2), Wild Jean (1)

1 Schneider electric, grenoble, France

2 Univ. Grenoble Alpes, CNRS, Grenoble INP*, G2Elab, Grenoble, France

A9161Sk

Hardware in the loop (HIL) modeling and validation for microgrid solution testing and commissioning

Samuel kamajaya (1), Audrey Moulichon (1) (presenting author), Florent Aubert (1), Jean Wild (1)

1 Schneider electric, grenoble, France

A8738HC

Integrated HiL Simulation of Multiple Real-Time Simulator Platforms to Study the Interactions in a Multi-Converters Network

Hui Cai (1) (presenting author), Uwe Raedel (1), Steffen Schlegel (1), Dirk Westermann (1)

1 Ilmenau University of Technology, Ilmenau, Germany

A9108NB

Distributed Co-Simulation of Networked Hardware-in-the-Loop Power Systems

Nauman Beg (1), Moiz Ahmed (1) (presenting author), Karen Derendorf (1), Frank Schuldt (1), Stefan Geißendörfer (1)

1 German Aerospace Center (DLR), Oldenburg, Germany

C27375SK

Power-Hardware In the Loop for the growing microgrids industry

Samuel Kamajaya (1), Jean Wild (1) (presenting author), François Cazals (1), Moulichon Audrey (1)

1 Schneider Electric Industries SAS, Grenoble, France

A8784BE

A C-HIL based data-driven DC-DC power electronics converter model for system-level studies

Antonin Colot (1), Bastien Ewbank (1) (presenting author), Mevludin Glavic (1), Bertrand Cornélusse (1)

1 University of Liège, Liège, Belgium

Wednesday 25 October 2023

16:30-18:00

State estimator

Everest

PAPER PRESENTATION

Chair : Dr. Simon Camal (Project Manager at Mines Paris, PSL University, France)

A8882WP

A Supervised Learning-Based Min/Max Voltage Estimation Model for All Nodes in Low-Voltage Networks

Woan-Ho Park (1) (presenting author), Jin Sol Hwang (1), Joonbyeok Hwang (1), Yohan Park (1), Won Namkoong (2), Yun-Su Kim (1)

1 Gwangju Institute of Science and Technology (GIST), Gwangju, Korea (Republic of)

2 Korea Electric Power Corporation, Daejeon, Korea (Republic of)

A9111KR

Demonstrating State Estimation for Future Smart Grid

Kalle Ruuth (1), Antti Supponen (1), Sami Repo (1) (presenting author), Antti Mutanen (2)

1 Tampere University, Tampere, Finland

2 ABB Oy, Tampere, Finland

A8941Sd

Parameter Estimation in Electrical Distribution Systems with limited Measurements using Regression Methods

Steven de Jongh (1) (presenting author), Felicitas Mueller (1), Claudio A. Canizares (2), Thomas Leibfried (1), Kankar Bhattacharya (2)

1 Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

2 University of Waterloo, Waterloo, Canada

A9151SF

Physics-Informed Neural Networks for Accelerating Power System State Estimation

Solon Falas (1) (presenting author), Markos Asprou (1), Charalambos Konstantinou (2), Maria K. Michael (1)

1 Dept. of Electrical and Computer Engineering, KIOS Research and Innovation Centre of Excellence, University of Cyprus, Nicosia, Cyprus

2 CEMSE Division, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

A8924At

Dynamic state estimation considering topology and observability in multi-area systems

Anton ter Vehn (1) (presenting author), Lars Nordström (1)

1 Royal Institute of Technology, Stockholm, Sweden

A8829PY

Reinforcement Learning-based District Cooling System Control for Voltage Regulation in Distribution Networks

Peipei Yu (1) (presenting author), Hongcai Zhang (1), Zechun Hu (1), Yonghua Song (1)

1 University of Macau, Macau, Macao

Wednesday 25 October 2023

16:30-18:00

Microgrid 2 : grid forming converter and DC microgrid

Makalu

PAPER PRESENTATION

Chair : Dr. Guangya Yang (Senior Researcher at DTU, Denmark)

A8853FB

Optimal Source Placement in a DC Microgrid Considering Line Losses and Cables Weight

Fouad Boutros (1,2,3) (presenting author), Moustapha Doumiati (1), Jean-Christophe Olivier (3), Imad Mougharbel (4), Hadi Kanaan (2)

1 Ecole Supérieure de l'Electronique de l'Ouest (ESEO), Angers, France

2 Saint-Joseph University of Beirut, Beirut, Lebanon

3 Université de Nantes, Nantes, France

4 ETS Montréal, Montréal, Canada

A9118JR

Decoupled Active and Reactive Power Controllers for Damping Low-Frequency Oscillations using Virtual Synchronous Machines

Njegos Jankovic (1), Javier Roldan-Perez (1) (presenting author), Milan Prodanovic (1), Salvatore D'Arco (2), Jon Are Suul (2), Luis Rouco (3)

1 IMDEA Energy Institute, Mostoles, Spain

2 SINTEF Energy, Trondheim, Norway

3 Institute for Research in Technology, ICAI, Comillas Pontifical University, Madrid, Spain

A9086PP

Novel PLL-less Direct Power Control of VSCs

Panos Papageorgiou (1), Antonio Alexandridis (1) (presenting author)

1 University of Patras, Rion-Patras, Greece

A8812BB

A DC-bus Signalling-Based Control of EVCS to Maximize Self-Consumption of PV Production in a Tertiary Building

Benoît Bouckaert (1) (presenting author), Khaled Almaksour (1), Christophe Saudemont (1), Antoine Picot (3), Camille Thiriez (2)

1 Arts et Métiers Institute of Technology, Centrale Lille, Univ. Lille, JUNIA, ULR 2697 - L2EP, Lille, France

2 CEGELEC NORD TERTIAIRE, Wasquehal, France

3 VINCI Construction - Délégations Bâtiment Nord-Est et ANS, Roubaix, France

A8250DM

Grid Forming Inverter Modeling for Microgrid Studies in Distribution Systems

Davis MONTENEGRO (1) (presenting author), Roger DUGAN (1), Mobolaji BELLO (1), Celso ROCHA (1)

1 EPRI, Knoxville, United States



A8965HF

Optimal AC/DC Distribution Systems Expansion Planning from DSO's Perspective Considering Topological Constraints

Heitor Farias de Barros (1) (presenting author), Marie-Cecile Alvarez-Herault (1), Bertrand Raison (1), Quoc Tuan Tran (1,2)

1 G2Elab, Grenoble, France

2 CEA-INES, Bourget-du-Lac, France

Wednesday 25 October 2023

16:30-18:00

Electric vehicles 3

Auditorium

PAPER PRESENTATION

Chair : Prof. Marc Petit (CentraleSupélec, France)

A8801YF

Electric Vehicle Charging Management for Avoiding Transformer Congestion Using Policy-based Reinforcement Learning

Yuzhuo Fu (1) (presenting author), Dennis Versen (1), Maik Plenz (1), Marcus Stiemer (1), Detlef Schulz (1)
1 Helmut-Schmidt-Universität, Hamburg, Germany

A8809NF

Forecasting the Flexibility Potential of Electric Vehicles Limited by Individual Charging Targets

Nelly-Lee Fischer (1) (presenting author), Krzysztof Rudion (1)
1 University of Stuttgart, Stuttgart, Germany

A9079GM

Warm Start Fitted Q Reinforcement Learning for Electric Vehicle Depot Charging

Stefano Massucco (1), Gabriele Mosaico (1), Matteo Saviozzi (1) (presenting author), Pablo Almaleck (2), Pietro Serra (2)
1 University of Genoa, Genova (GE), Italy
2 Hitachi Energy, Grid Automation Business Unit, Genova, Italy

A9120SP

Investigation on three-inverter fed two OEWM drives

Srinivasan Pradabane (1) (presenting author), Chandrasekhar Yammani (1), Salvatore D'Arco (2), Kjell Ljøkelsøy (2)
1 National Institute of Technology Warangal, Warangal, India
2 SINTEF Energy Research, NTNU Campus, Trondheim, Norway

A8824TP

Forecasting Sensitivity Analysis of Reinforcement Learning Based Smart Charging

Thijs Peirelinck (1,2) (presenting author), Klaas Thoelen (1,2), Geert Deconinck (1,2)
1 KU Leuven, Leuven, Belgium
2 EnergyVille, Genk, Belgium

A8689AK

Clark-Park Transformation based Autoencoder for 3-Phase Electrical Signals

André Kummerow (1) (presenting author), Mansour Alramlawi (1), Mohammad Dirbas (1), Steffen Nicolai (1), Peter Bretschneider (1)
1 FRAUNHOFER IOSB-AST, ILMENAU, Germany

Thursday 26 October 2023

8:30-10:00

Market 1 : energy communities market

Kilimandjaro 1-2

PAPER PRESENTATION

Chair : Dr. Rémy Rigo Mariani (Researcher at CNRS, G2ELab, France)

A8883CS

Federated Learning in Competitive EV Charging Market

Chenxi Sun (1) (presenting author), Chao Huang (2), Biying Shou (3), Jianwei Huang (4)
1 Shenzhen Institute of Artificial Intelligence and Robotics for Society, Shenzhen, China
2 The University of California, Davis, Davis, United States
3 City University of Hong Kong, Hong Kong, China
4 The Chinese University of Hong Kong, Shenzhen, China

A8632RS

Implications of Electricity Tariff Design on the Operation of Renewable Energy Communities

Robin Sudhoff (1,2) (presenting author), Yasmine Bouraoui (2), Sebastian Schreck (1), Sebastian Thiem (1), Stefan Niessen (1,2)
1 Siemens AG, Erlangen, Germany
2 Technical University of Darmstadt, Darmstadt, Germany

A8802SD

Impact of Non-Routine Device Utilization on Local Electricity Market Trading Deviations

Sjoerd Doumen (1) (presenting author), Phuong Nguyen (1), Koen Kok (1)
1 Eindhoven University of Technology, Eindhoven, Netherlands

A8903SM

DER Pricing Power in the Presence of Multi-Location Consumers with Load Migration Capabilities

Sara Mollaeivaneghi (1) (presenting author), Julia Barbosa (1), Florian Steinke (1)
1 Technical University of Darmstadt, Darmstadt, Germany

A8817CJ

Determination of electricity marginal costs on the basis of power system production plans

Corentin JEANNE (1) (presenting author), Jean-Marc JANIN (1), Paul PLESSIEZ (1)
1 RTE, Paris, France

Thursday 26 October 2023

8:30-10:00

Energy Communities 1

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Jonathan Coignard (Researcher at CNRS, G2ELab, France)

A8871HA

Analysis of Predictive Models for Revealing Socio-Demographic Information in Smart Grid Data

Hussein Aly (1), Abdulaziz Al-Ali (1), Abdulla Al-Ali (1) (presenting author), Qutaibah Malluhi (1)
1 Qatar University, Doha, Qatar

A8826SP

Robust Operation of Energy Communities in the Italian Incentive System

Amal Nammouchi (2) (presenting author), Marta Stentati (1), Simone Paoletti (1), Andreas Kassler (3), Andreas Theocharis (4)

1 Department of Information Engineering and Mathematics, University of Siena, Siena, Italy

2 Computer Science Department, Karlstad University, Karlstad, Sweden

3 Faculty of Computer Science, Deggendorf Institute of Technology, Deggendorf, Germany

4 Engine

A8976MN

A Tutorial Serious Game for Demonstrating Demand Response in an Energy Community

Mikko Nykyri (1) (presenting author), Tommi J. Kärkkäinen (1), Salla Annala (1), Johanna Naukkarinen (1), Pertti Silventoinen (1)

1 LUT University, Lappeenranta, Finland

A9105KB

Optimal control of domestic hot water tanks in a housing cooperative - benefits for the grid

Kjersti Berg (1) (presenting author), Vemund Hjertvik Lenes (1), Karen Byskov Lindberg (1)

1 Norwegian University of Science and Technology, Trondheim, Norway

A8912NG

Community-based P2P energy market for prosumers with different tariffs in Spain

Nerea Goitia-Zabaleta (1,2) (presenting author), Ane Feijoo-Arostegui (1), Aitor Milo (1), Haizea Gaztañaga (1), Elvira Fernandez (2)

1 IKERLAN Technology Research Centre, Basque Research and Technology Alliance (BRTA), Arrasate-Mondragón, Spain

2 UPV/EHU Basque Country University, Bilbao, Spain

A9064SD

Exploration of the Trade-off between Short Term (Battery) and Long Term (Hydrogen) Storage for a Wind Powered Energy Community

Silvia Domene (1) (presenting author), Sebastian Martin (1)

1 Department of Electrical Engineering, Universidad de Malaga, Malaga, Spain

Thursday 26 October 2023

8:30-10:00

Stabilities 1 : frequency stability

Kilimandjaro 3-4

PAPER PRESENTATION

Chair : Prof. Costas Vournas (National Technical Univ. of Athens, Greece)

A8877HN

Implementation of Particle Swarm Optimization (PSO) to optimize parameters of an island grid in the aim of improving the frequency stability

Hung Cuong NGUYEN (1) (presenting author), Quoc Tuan TRAN (1), Yvon Besanger (2)
1 CEA-INES, GRENOBLE, France
2 G2Elab, GRENOBLE, France

A9169RA

Enhanced Frequency Control for Low Inertia Power Systems: Wide-Area Monitoring vs. Zonal Scheme

Rasoul Azizipanah-Abarghooee (1), Mostafa Malekpour (1), Mingyu Sun (2), Ben Marshal (3), Mazaher Karimi (4) (presenting author), Vladimir Terzija (5)
1 RINA Tech UK Ltd, Manchester, United Kingdom
2 National Grid, Wokingham, United Kingdom
3 National HVDC Centre, Glasgow, United Kingdom
4 University of Vaasa, Vaasa, Finland
5 Newcastle University, Newcastle, United Kingdom

A8639SO

Optimal placement of synchronous condensers based on Benders decomposition with taking into account short-circuit and network constraints

Shota Omi (1) (presenting author), Yasuaki Nakayama (2), Naoki Kawamoto (2)
1 Hitachi Europe Ltd, London, United Kingdom
2 Hitachi, Ltd., Hitachi, Japan

A9113MD

Power Grid Frequency Forecasting from μ PMU Data using Hybrid Vector-Output LSTM network

Maitreyee Dey (1,2) (presenting author), Dilshan Wickramarachchi (1), Soumya Prakash Rana (1,3), Clarke V. Simmons (2), Sandra Dudley (1)
1 London South Bank University, London, United Kingdom
2 Neuville Grid Data, London, United Kingdom
3 University of Manchester, Manchester, United Kingdom

A8997T

Inertial Response of an Electric-Power System

Tadej Źkrjanc (1) (presenting author), Rafael Mihali (1), Urban Rudež (1)
1 University of Ljubljana, Faculty of Electrical Engineering, Ljubljana, Slovenia



A8861TB

Multi-area power system frequency nadir prediction

Tomislav Bažkarad (1) (presenting author), Ninoslav Holjevac (1), Igor Kuzle (1)

1 University of Zagreb Faculty of Electrical Engineering and Computing, Zagreb, Croatia

Thursday 26 October 2023

8:30-10:00

Edge computing and mathematical tools

MontBlanc 3-4

PAPER PRESENTATION

Chair : Prof. George Kariniotakis (Mines Paris, PSL University, France)

A8658AD

Impacts of spatial and temporal resolutions on the near-optimal spaces of energy system optimisation models

Antoine Dubois (1) (presenting author), Damien Ernst (1)

1 University of Liège, Liège, Belgium

A8694MV

Description of an edge computing solution to be used in Digital Substations

Maria Teresa Villen Martinez (1) (presenting author), Maria Paz Comech (2), Anibal Prada Hurtado (1), Eduardo Martinez Carrasco (1), Miguel Angel Oliván (1), Carlos Rodriguez del Castillo (3), David López Corton (4), Ruben Andrino (5)

1 CIRCE Research Centre, Zaragoza, Spain

2 Instituto Universitario de Investigación CIRCE (Fundación CIRCE-Universidad de Zaragoza), Zaragoza, Spain

3 Elewit (A company of Redeia) , Madrid, Spain

4 Redinter (A company of Redeia), Santiago de Chile, Chile

A8594HF

An Infrared Small Target Detection Algorithm Based on Edge Detection Enhancement

Hua Fan (1) (presenting author)

1 University of Electronic Science and Technology of China, Chengdu , China

A9122CS

Resilient Feature-driven Trading of Renewable Energy with Missing Data

Matias Kühnau (2), Akylas Stratigakos (1) (presenting author), Simon Camal (1), Samuel Chevalier (2), George Kariniotakis (1)

1 MINES PARIS - PSL University - Centre PERSEE, Sophia Antipolis, France

2 DTU Wind - Technical University of Denmark, Copenhagen, Denmark

A8718SM

A Two-Stage Stochastic Techno-Economic Optimal ESS Sizing Model to Enable Maximum Exploitation of RESs

Seyed Masoud Mohseni-Bonab (1,2) (presenting author), Ali Alizadeh (2), Innocent Kamwa (2), Abbas Rabiee (3)

1 Hydro Quebec Research Institute (IREQ), Varennes , Canada

2 Laval University, Quebec city, Canada

3 University of Zanjan , Zanjan, Iran

Thursday 26 October 2023

8:30-10:00

Flexibilities 2

Makalu

PAPER PRESENTATION

Chair : Dr. Pedro Faria (Research at Polytechnic Institute of Porto, Portugal)

A9157BC

Collecting French Smart Meter Data for Residential Flexibility

Benoit Couraud (1,2) (presenting author), Pierre-Jean Barre (2), Roberta Pennucci (2), Yann Rozier (2), Merlinda andoni (1), Sonam Norbu (1), David Flynn (1)

1 University of Glasgow, Glasgow, United Kingdom

2 université Côte d'Azur, Nice, France

A9130FK

Providing Curative Distribution Grid Flexibility Using Online Feedback Optimization

Florian Klein-Helmkamp (1) (presenting author), Fabian Böhm (1), Lukas Ortmann (2), Alexander Winkens (1), Florian Schmidtke (1), Saverio Bolognani (2), Florian Dörfler (2), Andreas Ulbig (1)

1 IAEW at RWTH Aachen University, Aachen, Germany

2 Automatic Control Laboratory at ETH Zurich, Zurich, Switzerland

A9173KT

Towards a flexibility analytics and optimization framework for demand side aggregators

Kostas Tsatsakis (1) (presenting author)

1 Suite5 Data Intelligence Solutions, Limassol, Cyprus

A8880SS

Robust Price-Based Demand Response Framework for Flexibility Provision in Distribution Systems

Shinya Sekizaki (1) (presenting author), Ichiro Nishizaki (1), Tomohiro Hayashida (1)

1 Hiroshima University, Higashi-Hiroshima, Japan

A8800IB

Industrial Energy Flexibility Scheduling Based on Conditional Value at Risk

Isabella Bianchini (1) (presenting author), Lea Bitterolf (2), Alexander Sauer (1,2)

1 Fraunhofer-Institut für Produktionstechnik und Automatisierung IPA, Stuttgart, Germany

2 Institut für Energieeffizienz in der Produktion (EEP), Stuttgart University, Stuttgart, Germany

Thursday 26 October 2023

8:30-10:00

Climate change

Auditorium

PAPER PRESENTATION

Chair : Dr. Farnoosh Rahmatian (President of NuGrid Power Corp / F.IEEE, Canada)

A8750EM

The Effect of Proliferation of Low Carbon Technologies on Steady State Operation of Distribution Network

Ester Marcel (1) (presenting author), Zhaohan Qin (1), Jovica Milanovic (1)

1 The University of Manchester, Manchester, United Kingdom

A8875SM

Weather-Based Quasi Dynamic Thermal Ratings for Power Transformers

Sergio Montana (1) (presenting author), Andrea Michiorri (1)

1 Mines Paris - PSL - Centre PERSEE, Sophia Antipolis, France

A9080WY

Resilient Operation of Long-Term Hydrogen Energy Storage-Assisted Power Systems Against Heatwave Events

Wenqian Yin (1,2) (presenting author), Yunhe Hou (1,2)

1 The University of Hong Kong, Hong Kong, China

2 HKU Shenzhen Institute of Research and Innovation, Shenzhen, China

A9052AB

Reliability-based Capacity Expansion Planning for Decarbonization with the Aid of Energy Storage

Atri Bera (1) (presenting author), Cody Newlun (1), Walker Olis (1), Tu Nguyen (1), Joydeep Mitra (2)

1 Sandia National Laboratories, Albuquerque, United States

2 Michigan State University, East Lansing, United States

A9127NY

Predict Locational Marginal Greenhouse Gas Emission Factors of Electricity with Spatial-Temporal Graph Convolutional Networks

Wenyu Wang (1), Yinglun Li (1), Nanpeng Yu (1) (presenting author)

1 University of California, Riverside, Riverside, United States

Thursday 26 October 2023

11:00-12:30

Market 2

Kilimandjaro 1-2

PAPER PRESENTATION

Chair : Prof. Zita Vale (Polytechnic Institute of Porto, Portugal)

A8776JO

ETSim: A Simulation Environment for Evaluating the Impacts of Autonomous Devices Participating in Local Markets and Dynamic Tariffs

Juan Carlos Oviedo Cepeda (1) (presenting author), Luis Rueda (1), Fatima Amara (1), Jean-Francois Alix (1)
1 Hydro-Québec, Montreal, Canada

A9171EJ

Assessment of a Network-Constrained P2P Energy Trading Scheme through Auction Mechanism

Emad Jamil (1) (presenting author)
1 University College Cork, Cork, Ireland

A9062MS

Quantitative Evaluation of Multi-Community Peer to Peer Electricity Trading Mechanisms

Morteza Shafiekhani (1) (presenting author), Meysam Qadrdan (1), Yue Zhou (1), Jianzhong Wu (1)
1 School of Engineering, Cardiff University, Cardiff, UK, Cardiff, United Kingdom

A8781RD

FDIAs on Hybrid Trading Transactive Energy Markets: Attacks, Impacts, and Prevention

Rumpa Dasgupta (1) (presenting author), Amin Sakzad (1), Carsten Rudolph (1), Rafael Dowsley (1)
1 Dept of Software Systems and Cybersecurity, Monash University, Melbourne, Australia

A9159MB

Understanding the Disruptive Effects of Rooftop Solar PVs on Electric Utilities: Implications for the Power Industry

Mohammadreza Barazesh (1) (presenting author), Mohammad Hossein Javidi Dasht Bayaz (1)
1 Ferdowsi University of Mashhad, Mashhad, Iran

Thursday 26 October 2023

11:00-12:30

Energy Communities 2

MontBlanc 1-2

PAPER PRESENTATION

Chair : Dr. Vincent Debusschere (Assoc. Prof. at Grenoble INP | Univ. Grenoble Alpes, France)

A8684LB

Integrating Distribution Grid Characteristics in Multi-Energy System Optimization Modeling

Luis Böttcher (1) (presenting author), Steffen Kortmann (1), Julian Saat (1), Henrik Schwaeppe (1), Andreas Ulbig (1), Tim Felling (2), Oliver Levers (2), Philipp Fortenbacher (2)
1 RWTH Aachen University, Aachen, Germany
2 Amprion GmbH, Dortmund, Germany

A8954FP

Case Study of Shared Solar Applications in a Swedish Energy Community

Filippo Padovani (1) (presenting author), Monika Topel Capriles (1), Björn Laumert (1)
1 KTH Royal Institute of Technology, Stockholm, Sweden

A8737MP

Flexibility Valorization in Energy Communities: Grid Constraints Impact and Mitigation

Muhammad Andy Putratama (1) (presenting author), Rémy Cleenwerck (1,2), Jan Desmet (2), Maarten Messagie (1), Thierry Coosemans (1)
1 EVERGi, MOBI Research Center, Vrije Universiteit Brussel, Brussels, Belgium
2 EELab/Lemcko Research Group, Ghent University, Kortrijk, Belgium

A9084LS

Impact of retail electricity prices and grid tariff structure on the operation of resources scheduling in Renewable Energy Communities

Louise Sadoine (1) (presenting author), Zacharie De Grève (1), Thomas Brihaye (1)
1 University of Mons, Mons, Belgium

A8863VT

Optimal Operation of Battery Storage Systems in Renewable Energy Communities

Pablo De Juan - Vela (1) (presenting author), Asja Alic (1), Vincenzo Trovato (1,2)
1 University of Trento, Trento, Italy
2 Imperial College London, London, United Kingdom

A9124LT

Flexibility of Multi-Energy Systems Exploited as a Market Service: An overview

Leticia Tomas Fillol (1) (presenting author), Goncalo Mendes (1), Antti Pinomaa (1), Samuli Honkapuro (1)
1 LUT, Lappeenranta, Finland

Thursday 26 October 2023

11:00-12:30

Stabilities 2 : Small signal and frequency stabilities

Kilimandjaro 3-4

PAPER PRESENTATION

Chair : Prof. Bogdan Marinescu (Centrale Nantes, France)

A8704PZ

A Conceptual Benchmark for the Study of Interactions and Inter-area Oscillations in Power Systems With High Power Electronics Penetration

Pamela ZOGHBY (1,2) (presenting author), Bogdan MARINESCU (2), Antoine ROSSE (1), Gregoire PRIME (1)
1 EDF R&D, Palaiseau, France
2 Ecole Centrale Nantes, Nantes, France

A9094BE

Improving Frequency Stability Assessment through K-Nearest Neighbors and Machine Learning Techniques

Bwandakassy Elenga Baningobera (1) (presenting author), Irina Oleinikova (1)
1 Norwegian University of Science and Technology (NTNU), Trondheim, Norway

A8918AR

Real-Time Power System Stability Monitoring using Convolutional Neural Networks

Arvid Rolander (1) (presenting author), Xavier Weiss (1), Robert Eriksson (1,2), Lars Nordström (1)
1 KTH, Stockholm, Sweden
2 Svenska Kraftnät, Sundbyberg, Sweden

A9054KK

A Wavelet Based Synchronized Waveform Measurement Unit Algorithm

Kevin Kawal (1) (presenting author), Qiteng Hong (1), Panagiotis Papadopoulos (1), Steven Blair (2), Campbell Booth (1,2)
1 University of Strathclyde, Glasgow, United Kingdom
2 Synaptec, Glasgow, United Kingdom

A8973JV

Small-Signal Stability of Power Systems with a Mix of Synchronous Generators and Inverter-Based Resources

Jared Vochoska (1,2) (presenting author), Muhammad Sharjeel Javaid (1), Zohaib Akhtar (1), Balarko Chaudhuri (1)
1 Imperial College London, London, United Kingdom
2 Electric Power Engineers, Austin, United States

A8834JK

Classification of Power System Stability Using Deep Learning

Jongju Kim (1), Heungseok Lee (2), June Ho Park (2,3) (presenting author)
1 Korea Southern Power Company, Busan, Korea (Democratic People's Republic of)

Thursday 26 October 2023

11:00-12:30

Volt var controls

MontBlanc 3-4

PAPER PRESENTATION

Chair : 0

A9144IV

Application Experiences of Low Voltage Inline Voltage Regulator with Significant Photovoltaic Generation

Istvan Vokony (1), Istvan Taczi (1), Janos Csatar (1), Balint Hartmann (1), Andras Dan (1), Peter Mark Sores (1) (presenting author)

1 Budapest University of Technology and Economic, Budapest, Hungary

A9071EM

The Impacts of Spatially Distributed Demand Growth and Load Modelling on Distribution Network Operation

Ester Thomas Marcel (1), Saad Alyoubi (1), Airam Perez Guillen (1) (presenting author), Jovica Milanovic (1), Tee Shengji (2)

1 The University of Manchester, Manchester, United Kingdom

2 Scottish Power Energy Networks, Glasgow, United Kingdom

A9125SA

Capacitor Coupled Voltage Transformer Defect Identification in the Presence of Tap Changer

Sajjad Asefi (1) (presenting author), Leinakse Madis (1), Kilter Jako (1), Landsberg Mart (2)

1 Tallinn University of Technology, Tallinn, Estonia

2 Elering AS, Tallinn, Estonia

A9096SD

Comparative Analysis of Grid Forming Inverters based Power Systems in Phasor Domain and Electromagnetic Transient Domain

Said DAOUDI (1) (presenting author), Thai Phuong DO (1)

1 Univ Grenoble Alpes, CEA, Liten, Campus Ines, 73375 Le Bourget-du-Lac, France

A9141LD

Converter Interaction Identification using Open-Loop Mode Transition Criterion

Lokesh Kumar Dewangan (1) (presenting author), Francesco Giacomo Puricelli (1), Jef Beerten (1)

1 KU Leuven, Leuven, Belgium

A8895GP

Effect of RES current injection requirements on Voltage Stability Margin

Giorgos Prionistis (1) (presenting author), Panos Mandoulidis (1), Costas Vournas (1)

1 National Technical University of Athens (NTUA), Athens, Greece

Thursday 26 October 2023

11:00-12:30

Flexibilities 3

Makalu

PAPER PRESENTATION

Chair : Dr. Masoud Mohseni-Bonab (Senior Researcher at Hydro Quebec Research Institute / Adjunct Prof. at Laval Univ., Canada)

A8688HP

Intraday Operation Planning Performance in Jawa Bali System to Ensure System Flexibility in Mitigating High Integration of Variable Renewable Energy (VRE)

Ahmad Murdani (1) (presenting author), Handika Putra (1), Johanes Hendra Febrianto Rajagukguk (1)
1 PT PLN (Persero), Jakarta, Indonesia

A9172AZ

After Diversity Maximum Demand and Daily Load Profiles of Maximum Demand for Uncontrolled Residential EV Charging

As'ad Zakaria (1) (presenting author), Chengyan Duan (1), Haroon Zafar (1), Sasa Djokic (1)
1 The University of Edinburgh, Edinburgh, United Kingdom

A8717JT

Day-Ahead Electricity Prices Volatility with LSTM Probabilistic Forecasting

Julius Trebbien (1) (presenting author), Sebastian Pütz (2), Benjamin Schäfer (2), Heidi S. Nygård (3), Leonardo Rydin Gorjão (3), Dirk Witthaut (1)

1 Forschungszentrum Jülich, Jülich, Germany
2 Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany
3 Norwegian University of Life Sciences, Ås, Norway

A8850JR

Uncertainty-Aware Energy Flexibility Quantification of a Residential Building

Julie Rousseau (1,2) (presenting author), Hanmin Cai (2), Philipp Heer (2), Kristina Orehounig (2), Gabriela Hug (1)

1 Power Systems Laboratory, ETH Zürich, Zürich, Switzerland
2 Urban Energy Systems Laboratory, Empa, Dübendorf, Switzerland

A9028PF

Local Energy Market Competition Approach for Demand Response Events

Catia Silva (1), Pedro Faria (1) (presenting author), Zita Vale (1)
1 Polytechnic of Porto, Porto, Portugal

A8753MS

Quantifying Demand Side Flexibility in the Residential Sector: A Coherent and Abbreviated Procedure for Categorization and Measurement

Mohammadreza Shekari (1) (presenting author), Daniel Koster (1), André Guimaraes Madureira (1)
1 Environmental Research and Innovation (ERIN) department, Luxembourg Institute of Science and Technology (LIST), Esch-sur-Alzette, Luxembourg

Thursday 26 October 2023

11:00-12:30

Congestion and restoration

Auditorium

PAPER PRESENTATION

Chair : 0

A9117FG

Operational planning of DER considering novel congestion management markets

Felix Gaumnitz (1) (presenting author), Andreas Ulbig (1)
1 RWTH Aachen, Aachen, Germany

A8734MA

MILP-based Service Restoration in Prosumer-based Active Distribution Networks

Monir Ashrafi (1,2) (presenting author), Ali Abbaspour-Tehraniard (2), Mahmud Fotuhi-Firuzabad (2), Sajjad Fattaheian-Dehkordi (2,3), Seddik Bacha (1), Raphael Caire (1)
1 University Alpes of Grenoble, Grenoble, France
2 Sharif university of technology, Tehran, Iran
3 Aalto University, Espoo, Finland

A9056AV

Simulation of a congestion management utilizing load-side flexibilities within the distribution grid

Alexander Vanselow (1) (presenting author), Christian Fröhlich (1), Simon Krahl (1), Christoph Wirtz (1), Albert Moser (2)
1 FGH e. V., Aachen, Germany
2 IAEW RWTH Aachen University, Aachen, Germany

A8745AM

Optimal Countermeasures to Contingencies in Transmission Systems

Amer Mesanovic (1) (presenting author), Sarah Braun (1), Mirsad Cosovic (2)
1 Siemens AG, Munich, Germany
2 Faculty of Electrical Engineering, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

A9092FS

Handling protection-related uncertainties in simulations of fast cascading outages

Frédéric Sabot (1) (presenting author), Pierre-Etienne Labeau (1), Pierre Henneaux (1)
1 Université libre de Bruxelles, Bruxelles, Belgium

A8869RC

Smart Meter-Based Re-Phasing for Voltage Imbalance Enhancement Through Topology Reconstruction

Rémy Cleenwerck (1,2) (presenting author), Wouter Parys (1), Muhammad Andy Putratama (1), Jan Desmet (2), Thierry Coosemans (1)
1 Vrije Universiteit Brussel, Brussels, Belgium
2 Ghent University, Kortrijk, Belgium