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Technical Programme

Tuesday 19 Aug. 10:00 – 12:00

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An Optimal Scheduling of Battery Output and Load Control for Loss Minimizing Islanding Operation of Distribution Networks in Emergency (ID 382) Masanori Abe, Hiroumi Saitoh	Application of Emergency-Single Machine Equivalent Method for Cascading Outages (ID 164) Hongbo Shao, Zhenzhi Lin, Seán Norris, Janusz Bialek	Practice-Oriented Optimization of Distribution Network Planning Using Metaheuristic Algorithms (ID 252), Marinus O.W. Grond, Hoang N. Luong, Johan Morren, Peter A.N. Bosman, Han (J.G.) Sloopweg, Han La Poutré	A Decomposition Scheme for Short Term Hydrothermal Scheduling Problems Suitable for Parallel Processing (ID 480) Tiago Norbiato, André Diniz, Carmen Borges

Technical Programme

Wednesday 20 Aug. 8:30 – 9:30

SP1: Survey paper 1

Chair: Fernando L. Alvarado, Room: 10AC / D-20

Advanced Optimization Methods for Power Systems

Patrick Panciatici, Marco Campi, Simone Garatti, Steven H. Low, Daniel K. Molzahn, Andy X. Sun, Louis Wehenkel

Wednesday 20 Aug. 10:00 – 12:00

PS13: Integration of Storage	PS14: Stability Analysis and Control	PS15: Power Quality	PS16: Advanced Optimization Methods for Power Systems (invited)
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Day-Ahead Economic Scheduling of Energy Storage (ID 146) Ioannis Lampropoulos, Panagiotis Garoufalos, Paul P.J. van den Bosch, Robert J.W. de Groot, Wil L. Kling	Quasi Steady-State Model for Power System Stability: Limitations, Analysis and Remedy (ID 103) Xiaozhe Wang, Hsiao-Dong Chiang	Classification of Disturbance Records in Power Stations Based on Fuzzy Reasoning (ID 378) Miguel Moreto, Dionatan A. Guimarães Cieslak, Jacqueline G. Rolim	Convexification of AC Optimal Power Flow (ID 991) Lingwen Gan, Steven H. Low
Evaluation of Storage Systems in Distribution Networks by Means of an Agent-Based Simulation System (ID 4) Jan Kays, André Seack, J. von Haebler, Christian Rehtanz	Stability Boundary on P-V Plane for Analysis of Short-Term Voltage Stability (ID 67) Kenichi Kawabe, Kazuyuki Tanaka	Detection of Power System Transients Disturbances in Distributed Generation Systems Using Hilbert Transform and Signal Decomposition (ID 548) Tomasz Sikorski, P. Kostyla	Structured Nonconvex Optimization of Large-Scale Energy Systems Using PIPS-NLP (ID 992) Naiyuan Chiang, Cosmin G. Petra, Victor M. Zavala
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Model Predictive Control for Energy Storage Systems in a Network with High Penetration of Renewable Energy and Limited Export Capacity (Peter) P. Zeng, Z. Wu, X-P. Zhang, C. Liang, Y. Zhang	Transient Stability Assessment of Controlled Islanding Based on Power Flow Tracing (ID 183) Zhenzhi Lin, Seán Norris, Hongbo Shao, Janusz Bialek	Calculation of Voltage Unbalance Factor in Power System Supplying Traction Transformers (ID 450) Lesław Ładniak	Stochastic Optimal Power Flow Based on Convex Approximations of Chance Constraints (ID 416) Tyler Summers, Joseph Warrington, Manfred Morari, John Lygeros
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Use of Energy Storage in Isolated Microgrids (ID 342) Pio Lombardi, Zbigniew Styczynski, Tatiana Sokolnikova, Konstantin Suslov		Practical Implementation of the Coupled Norton Approach for Nonlinear Harmonic Models (ID 381) Anna S. Følting, Johanna M.A. Myrzik, Thomas Wiesner, Lars Jendernalik	

Technical Programme

Wednesday 20 Aug. 13:15 – 15:15

PS17: Microgrids and Distributed Energy Management Systems	PS18: System Operation and Restoration	PS19: Developments in Fault Location and Distance Protection	PS20: Optimal Power Flow 1
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Analyzing the Impact of Home Energy Systems on the Electrical Grid (ID 131) Tim Schlösser, Sebastian Stinner, Antonello Monti, Dirk Müller	A Fast Transient Stability Screening and Ranking Tool (ID 464) Mohammed Benidris, Niannian Cai, Joydeep Mitra	Fault Location Under CT Saturation for Overhead Transmission Lines Based on Asynchronous Measurements and ANNs (ID 306) Mateusz Pustułka, Mirosław Łukowicz	Relaxations for Multi-Period Optimal Power Flow Problems with Discrete Decision Variables (ID 176) Quentin Gemine, Damien Ernst, Quentin Louveaux, Bertrand Cornélusse
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An Affine Arithmetic Approach for Microgrid Dispatch with Variable Generation and Load (ID 239) Mehrdad Pirnia, Claudio Cañizares, Kankar Bhattacharya, Alfredo Vaccaro	Power System Restoration Planning with Standing Phase Angle and Voltage Difference Constraints (ID 254) Terrence W.K. Mak, Carleton Coffrin, Pascal Van Hentenryck, Ian A. Hiskens, David Hill	The Real-Time Simulator for Protective Relays Testing Using MATLAB/Simulink Software (ID 290) Adam Smolarczyk, Ryszard Kowalik, Emil Bartosiewicz	

Technical Programme

Thursday 21 Aug. 8:30 – 9:30

SP2: Survey paper 2

Chair: Marta Molinas, Room: 10AC / D-20

Modeling and Control of HVDC Grids: A Key Challenge for the Future Power System

Jef Beerten, Oriol Gomis-Bellmunt, Xavier Guillaud, Johan Rimez, Arjen van der Meer, Dirk Van Hertem

Thursday 21 Aug. 10:00 – 12:00

PS21: Multiple Energy Vectors and the Demand Side Chair: Wil L. Kling Room: 10B / D-20	PS22: HVDC Modelling Chair: Dirk Van Hertem and Prof. Xavier Guillaud Room: 10D / D-20	PS23: Dispatch of Generation and Reserve Chair: Anastasios Bakirtzis Room: 03 / D-21	PS24: Distribution System Operation and Reconfiguration. Chair: Pedro Carvalho Room: 07 / D-21
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Aggregated Electric Vehicles Load Profiles with Fast Charging Stations (ID 456) Gianni Celli, Gian Giuseppe Soma, Fabrizio Pilo, Fabio Lacu, Susanna Mocci, Nicola Natale	Probabilistic Security Constrained Optimal Power Flow for a Mixed HVAC and HVDC Grid with Stochastic Infeed (ID 197) Roger Wiget, Maria Vrakopoulou, Göran Andersson	A Linear Decision Rule Approach for Robust Unit Commitment Considering Wind Power Generation (ID 238) Peng Xiong, Panida Jirutitijaroen	Optimal AC Distribution Systems Reconfiguration (ID 324) Hassan L. Hijazi, Sylvie Thiébaux
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Technical Programme

Thursday 21 Aug. 13:30 – 15:30

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Efficient Allocation of Balancing and Ramping Costs (ID 49) Tobias W. Haring, Daniel S. Kirschen, Göran Andersson	Phasor-Measurement-Based Voltage Stability Margin Calculation for a Power Transfer Interface with Multiple Injections and Transfer Paths (ID 102) Scott G. Ghiocel, Joe H. Chow, George Stefopoulos, Bruce Fardanesh, Deepak Maragal, D. B. Bertagnolli, M. Swider, M. Razanousky, Dejan J. Sobajic	Impact of Improved Models on the Reliability Calculation of Offshore Wind Farms (ID 112) Issam Athamna, Markus Zdrallek, Eduard Wiebe, Friedrich Koch	Security Constrained OPF Incorporating Corrective Control of HVDC (ID 125) Spyros Chatzivasileiadis, Göran Andersson
Optimal Transmission Capacity Allocation for Cross-Border Exchange of Frequency Restoration Reserves (FRR) (ID 423) Yonas Gebrekiros, Gerard Doorman	A Method for Real Time Voltage Stability Monitoring in Sub-Transmission Networks (ID 88) Dinh Thuc Duong, Kjetil Uhlen, Stig Løvlund	Correlations in Reliability Assessment of Agent-Based Ancillary-Service Coalitions (ID 79) Marita Blank, Sebastian Lehnhoff	Security Constrained Optimal Power Flow for HVAC and HVDC Grids (ID 196) Roger Wiget, Emil Iggländ, Göran Andersson
Effective Flywheel Energy Storage (FES) Offer Strategies for Frequency Regulation Service Provision (ID 344) Fang Zhang, Mirat Tokombayev, Yonghua Song, George Gross	Wide-Area Measurements Controller Design Based on Adaptive Concept for Damping Inter-Area Mode (ID 167) Ngoc Huynh Tran, Akihiko Yokoyama	Impact of Correlated Infeeds on Risk-Based Power System Security Assessment (ID 363) Martijn De Jong, George Papaefthymiou, Domenico Lahaye, Kees Vuik, Lou van der Sluis	An AC OPF-Based Heuristic Algorithm for Optimal Transmission Switching (ID 337) Florin Capitanescu, Louis Wehenkel
A Quantitative Analysis of the Effect of Flexible Loads on Reserve Markets (ID 259) Sebastien Mathieu, Quentin Louveaux, Damien Ernst, Bertrand Cornélusse	Wide Area Measurements Based Robust Power System Controller Design (ID 120) Masayuki Watanabe, Masaya Yamashita, Yasunori Mitani	Reliability Evaluation of Composite Power Systems Using Sequential Simulation with Latin Hypercube Sampling (ID 75) Zhen Shu, Bordin Bordeerath, Panida Jirutitijaroen	Primal and Dual Bounds for Optimal Transmission Switching (ID 248) Carleton Coffrin, Hassan L. Hijazi, Karsten Lehmann, Pascal Van Hentenryck
Pricing Flexible Demand Non-Convexities in Electricity Markets (ID 377) Yujian Ye, Dimitrios Papadaskalopoulos, Goran Strbac	Wide Area Robust Centralized Power Oscillation Dampers Design of DFIG-Based Wind Turbines (ID 177) Tossaporn Surinkaew, Issarachai Ngamroo	Serving Flexible Reliability in Hybrid AC-DC Microgrid Using Demand Response and Renewable Energy Resources (ID 115) Payam Teimourzadeh Baboli, M.P. Moghaddam, M.R. Haghifam, M. Shafie-khah, João P.S. Catalão	Optimal Transmission Line Switching for Large-Scale Power Systems Using the Alternating Direction Method of Multipliers (ID 118) Olli Mäkelä, Joseph Warrington, Manfred Morari, Göran Andersson

Technical Programme

Thursday 21 Aug. 16:00 – 18:00

PS29: Economics and Markets 2 Chair: Tomás Gómez San Román Room: 10B / D-20	PS30: Reliability of Networks Chair: Patrick Panciatici Room: 10D / D-20	PS31: Forecasting and Analysis of Generation and Demand Chair: Pierluigi Mancarella Room: 03 / D-21	PS32: Voltage Control of Active Distribution Networks Chair: Mario Paolone Room: 07 / D-21
Contracting Strategies for Generation Companies with Ambiguity Aversion on Spot Price Distribution (ID 199) Bruno Fanzeres, Alexandre Street, Luiz Augusto Barroso	Impact of Substation Configuration on Protection System Failure Propagation and its Effect on Reliability of Supply (ID 517) Vijay Venu Vadlamudi, Oddbjørn Gjerde, Gerd Kjølle	A High-Dimensional VARX Model to Simulate Monthly Renewable Energy Supply (ID 101) Mario Souto, Alexandre Moreira, Álvaro Veiga, Alexandre Street, Joaquim Dias Garcia, Camila Epprecht	Voltage Control of Multiple Step Voltage Regulators by Renewing Control Parameters (ID 233) Shinya Yoshizawa, Yuya Yamamoto, Jun Yoshinaga, Yasuhiro Hayashi, Shunsuke Sasaki, Takaya Shigetou, Hideo Nomura
Techno-Economic Assessment of Flexible Combined Heat and Power Plant with Carbon Capture and Storage (ID 399) Adrien Saint-Pierre, Pierluigi Mancarella	The Change of Power System Response after Successive Faults (ID 569) Jarno Lamponen, Emil Hillberg, Liisa Haarla, Ritva Hirvonen	Statistical Analysis of Large Scale Wind Power Generation Using Monte Carlo Simulations (ID 127) Matti Koivisto, Jussi Ekström, Eero Saarijärvi, Liisa Haarla, Janne Seppänen, Ilkka Mellin	Contribution of Active Distribution Grids to the Coordinated Voltage Control of the Swiss Transmission System (ID 217) Maria Zerva, Martin Geidl
A Novel Framework to Define the Premium for Investment in Complementary Renewable Projects (ID 140) Aderson Campros Passos, Alexandre Street, Bruno Fanzeres, Sergio Bruno	MOPSO Using Probabilistic and Deterministic Criteria Based on OHL's Thermal Ratings (ID 473) Alexandra Kapetanaki, Konstantinos Kopsidas	Solar Power Forecasting in Smart Grids Using Distributed Information (ID 124) Ricardo J. Bessa, Artur Trindade, André Monteiro, Vladimiro Miranda, Cátia S.P. Silva	Dynamic Grid Support in Low Voltage Grids – Fault Ride-Through and Reactive Power/Voltage Support During Grid Disturbances (ID 70) Gustav Lammert, Tobias Hess, Maximilian Schmidt, Peter Schegner, Martin Braun
Cost Recovery in a Rolling Horizon Unit Commitment with Energy Storage (ID 375) Ting Qiu, Tobias Haring, Daniel Kirschen	Short-Circuit Power as Important Reliability Factor for Power System Planning (ID 529) Jan Machowski, Sylwester Robak, Piotr Kacejko, Piotr Miller, Marek Wancerz	Impact of Forecast Error of Photovoltaic Power Output on Demand and Supply Operation in Power Systems (ID 77) Taisuke Masuta, Takashi Oozeki, Joao Gari da Silva Fonseca, Akinobu Murata	An Optimal Decentralized Control for Voltage Control Devices by Means of a Multi-Agent System (ID 385) Yoshifumi Zoka, Naoto Yorino, Masahiro Watanabe, Tomohiro Kurushima
European Power Exchange Day-Ahead Market Clearing with Benders Decomposition (ID 425) Grigoris A. Dourbois, Pandelis N. Biskas	Influence of Reliability Calculation and Simulation of Organization Structure on Quality of Supply (ID 25) Hans Henning Thies, Markus Zdrallek, Michael Schwan, Andreas Ettinger	Non-Parametric Probability Density Forecast of an Hourly Peak Load during a Month (ID 339) Yogesh K. Bichpuriya, S.A. Soman, A. Subramanyam	Volt/Var Optimization of Unbalanced Distribution Feeders via Mixed Integer Linear Programming (ID 172) Alberto Borghetti, Fabio Napolitano, Carlo Alberto Nucci
Hybrid Evolutionary-Adaptive Approach to Predict Electricity Prices and Wind Power in the Short-Term (ID 72) Gerardo J.O. Osório, João C.O. Matias, João P.S. Catalão	A Comparison of AC and DC Power Flow Models for Contingency and Reliability Analysis (ID 532) Håkon Kile, Kjetil Uhlen, Leif Warland, Gerd Kjølle	Improved Zonal Network Models in Generation Scheduling (ID 301) Kenneth Van den Bergh, Erik Delarue, William D'haeseleer	Coordinated Voltage Control Algorithms Tested in Real Time Digital Simulator (ID 54) Juho Tuominen, Sami Repo, Anna Kulmala

Technical Programme

Friday 22 Aug. 8:30 – 9:50

PS33: State and Topology Estimation Chair: Antonio Simões Costa Room: 10B / D-20	PS34: Dynamic Simulation and Computing Platforms Chair: Costas D. Vournas Room: 10D / D-20	PS35: Component Modelling Chair: Jay Giri Room: 03 / D-21	PS36: Modelling of Electro-Magnetic Transients Chair: Kai Strunz Room: 07 / D-21
Critical Measuring Units for State Estimation (ID 203) Milton B. Do Coutto Filho, Julio C. Stacchini de Souza, Andre A. Augusto	DYMONDS Computer Platform for Smart Grids (ID 539) Marija D. Ilić	An Improved Modeling for Microturbines and Fuel Cells to the Energy Management Problem of Microgrids (ID 320) Daniel Tenfen, Erlon C. Finardi, Victor S.S. Fernandez, Thomas Ober	A Relaxation Scheme to Combine Phasor-Mode and Electromagnetic Transients Simulations (ID 89) Frédéric J. Plumier, Petros Aristidou, Christophe Geuzaine, Thierry Van Cutsem
The Test Equation Method for Linear State Estimation Based on PMU Data (ID 76) Irina Kolosok, Elena Korkina, Evgeny Buchinsky	Real-Time Grid Simulation Platform for System Analysis Using Virtual Power Source (ID 229) Ryosuke Uda, Kenichi Kuroda, Masashi Kitayama, Akifumi Iwamaru, Shinta Fukui	Enhanced Electrical Model of Lithium-Based Batteries Accounting the Charge Redistribution Effect (ID 191) Maryam Bahramipناه, Dimitri Torregrossa, Rachid Cherkaoui, Mario Paolone	Optimum Time Step Size and Maximum Simulation Time in EMTP-Based Programs (ID 478) José Carlos G. de Siqueira, Benedito D. Bonatto, José R. Martí, Jorge A. Hollman, Hermann W. Dommel
Topology Validation via Simultaneous State & Topology Estimation with Phasor Data Processing Capability (ID 218) Edson Andreoli, Antonio Simões Costa, Kevin A. Clements	Dynamic Simulations of Combined Transmission and Distribution Systems Using Parallel Processing Techniques (ID 19) Petros Aristidou, Thierry Van Cutsem	Synchronizing Microgrids to the Utility through a Series Compensator (ID 485) André A.P. Lerm, Luciano A. Braatz, Michel F. da Cruz, Tiago L. Riechel, Sérgio L.S. Severo	Iterative Algorithms of Surge Arrester for Real-Time Simulators (ID 566) Christian Dufour, Olivier Tremblay
Topology Error Processing Based on Forecast Measurement Errors (ID 160) Chaojun Gu, Panida Jirutitijaroen	Evaluation of Smart Grid Control Strategies in Co-Simulation – Integration of IPSYS and Mosaik (ID 277) Anna Magdalena Kosek, Ontje Lünsdorf, Stefan Scherfke, Oliver Gehrke, Sebastian Rohjans	Calculation of Off-core Inductances in Dual-Circuit Model of Transformer (ID 44) Abbas Lotfi, Hans K. Høidalen, Nicola Chiesa, Ebrahim Rahimpour	Shifted Frequency Analysis (SFA) Concepts for EMTP Modelling and Simulation of Power System Dynamics (ID 149) José R. Martí, Hermann W. Dommel, Benedito D. Bonatto, Alexandre F.R. Barreto

Technical Programme

Friday 22 Aug. 10:10 – 11:30

PS37: Economics and Markets 3	PS38: Control Incorporating Power Electronic Converters	PS39: Communication and Cyber Security	PS40: Transients.
Chair: Thilo Krause Room: 10B / D-20	Chair: Nikolai Voropai Room: 10D / D-20	Chair: Lars Nordström Room: 03 / D-21	Chair: Teresa Correia de Barros Room: 07 / D-21
Revenue- and Network-Constrained Market Clearing via Bilevel Programming (ID 145) Ricardo Fernández-Blanco, José M. Arroyo, Natalia Alguacil	Simultaneous Tuning of Power System Stabilizers Installed in the VSC-Based MTDC Networks of Large Offshore Wind Farms (ID 453) Fernanda O. Resende, M. Helena Vasconcelos, João Abel Peças Lopes	Effective Measurement Design for Cyber Security (ID 357) Murat Göl, Ali Abur	Efficiency of Rural Distribution Feeders Against Lightning: A Case Study (ID 471) Roberto J. Cabral, Daniel S. Gazzana, Roberto C. Leborgne, Arturo S. Bretas, Guilherme A.D. Dias, Marcos Telló
Analysis of Locational Marginal Prices in Look-Ahead Economic Dispatch (ID 420) Anupam A. Thatte, Dae-Hyun Choi, Le Xie	Power System Stability Control Using Voltage Source Converter Based HVDC in Power Systems with a High Penetration of Renewables (ID 82) Markus Imhof, Göran Andersson	Impact Quantification of Hypothesized Attack Scenarios on Bus Differential Relays (ID 440) Rashiduzzaman Bulbul, Yuan Gong, Chee-Wooi Ten, Andrew Ginter, Shengwei Mei	Long Arcs in Free Air: Stationary Parameters for Secondary Arc Current Range (ID 361) Athos Garcia, Maria Cristina Tavares
The Impact of Forecasting Errors and Remedial Actions on Operational Security and Efficiency in Classical and Probabilistic Market Coupling (ID 161) Sven Christian Müller, Volker Liebenau, Sebastian Ruthe, Christopher Spieker, Chris Kittl, Stefan Dalhues, Daniel Mayorga, Valeri Franz, Christian Rehtanz	Control Strategy for the Stable Operation of Multilevel Converter Topologies in DG Technology (ID 22) Edris Pouresmaeil, Majid Mehrasa, João P.S. Catalão	Model-Driven Engineering Applied to Smart Grid Automation Using IEC 61850 and IEC 61499 (ID 311) Filip Andrén, Thomas Strasser, Wolfgang Kastner	Single-Sided Partial Discharge Location Method Based on Impedance Discontinuities along Power Cable (ID 135) Yan Li, Peter A.A.F. Wouters, Paul Wagenaars, Peter C.J.M. van der Wielen, E. Fred Steennis
Transmission Tariff Allocation under High Renewable Source Penetration and Congestion Conditions (ID 208) Érica Telles Carlos, Delberis Araujo Lima	Analysis and Efficient Control Design for Generator-Side Converters of PMSG-Based Wind and Tidal Stream Turbines (ID 8) Carlos E. Ugalde-Loo, Luis A. Amézquita-Brooks, Eduardo Licéaga-Castro, Jesús Licéaga-Castro	Communications Uncertainties in Isolated Multi-Microgrid Control Systems (ID 168) David Rua, João Abel Peças Lopes, José Ruela	Mixed-Signal Power System Emulator Extension to Solve Unbalanced Fault Transient Stability Analysis (ID 114) Guillaume Lanz, Theodoros Kyriakidis, Rachid Cherkaoui, Maher Kayal

Friday 22 Aug. 12:00 – 13:30

PA: Advanced Data-Driven Modelling Techniques for Power Systems
Chair: Louis Wehenkel Room: 10AC / D-20
Panelists: 1. Whither Big Data in power systems? - Louis Wehenkel, University of Liege 2. Data-driven modeling for operation planning - Samir Issad, RTE 3. Data-driven modeling for asset management - Victoria Catterson, University of Strathclyde 4. Sample and feature selection for data-driven modeling in power systems - Vuk Malbasa, Texas A&M University