

2016 International Conference on Probabilistic Methods Applied to Power Systems (PMAPS 2016)

**Beijing, China
16-20 October 2016**

Pages 1-568



**IEEE Catalog Number: CFP16826-POD
ISBN: 978-1-5090-1971-7**

**Copyright © 2016 by the Institute of Electrical and Electronics Engineers, Inc
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

******This publication is a representation of what appears in the IEEE Digital Libraries. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP16826-POD
ISBN (Print-On-Demand):	978-1-5090-1971-7
ISBN (Online):	978-1-5090-1970-0

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

Paper ID	Author names	Technical article titles Title
1	Carl Johan Wallnerström; Lina Bertling Tjernberg; Patrik Hilber; Jan Henning Jürgensen	Framework for System Analyses of Smart Grid Solutions with examples from the Gotland case 1
13	Lingyun Wan; Ying Zhang; TingtingWei; Yixi Liao; Qing Zhou; Lei Xia; Zhuding Wang; Fengying Tang	Simplified Reliability Evaluation formulae for Overhead Medium Voltage Distribution Networks 10
15	Anupama Konara; Udaya Annakkage; Bagen Bagen	The probabilistic approach to determine the reliability of synchrophasor-based damping controllers 16
16	Hao Jiang; Hui Liu; Linlin Wu; Haixiang Xu	Literature Review of Power System Stochastic Stability 21
17	chanan singh; Shijia Zhao	Investigation of Equivalence between the Interstate Transition Rates and State Probabilities in the Data Analysis and Applications 25
19	Helge Pluntke; Marco Weisenstein; Wolfram Wellssow	Evaluation of Transmission Network Reinforcements in an Automated Network Planning Process 31
20	Jun Zhong; Hailei He; Bo Hu; Qinyong Zhou; Wenyuan Li	Determining A Critical Contingency Set Using Probabilistic Performance Indexes 38

21	Peyman Mazidi; Mian Du; Lina Bertling Tjernberg; Miguel A. Sanz Bobi	A Performance and Maintenance Evaluation Framework for Wind Turbines 44
22	Alexander Melhorn; Aleksandar Dimitrovski; Andrew Keane	Probabilistic Load Flow: a Business Park Analysis, Utilizing Real World Meter Data 52
23	Hangtian Lei; Chanan Singh	Developing a Benchmark Test System for Electric Power Grid Cyber-Physical Reliability Studies 58
27	Elena Rychagova; Vladimir Levin	Improving the efficiency of maintenance and repair of electrical network equipment 63
28	Han Rui; Wolfram Wellssow	A Smart Grid Metrics Assessment of Distribution Automation for Reliability Improvement 68
29	RUI WANG; JIE WANG; XIAO MI	Stochastic Small Disturbance Stability Analysis of Multi-machine System Based on Energy Function 76
30	Mao Yang; Jian Ma	Data Completing of Missing Wind Power Data Based on Adaptive BP Neural Network 81
32	Sabbir Arman; Rajesh Karki; Roy Billinton	Resource Strength and Location Impact of Wind Power on Bulk Electric System Reliability 87
33	Milorad Papic; Michael Clemons; Svetlana Ekisheva; Jake Langthorn; Trinh Ly; Michael Pakeltis; Richard Quest; Jeff Schaller; David Till; Kurt Weisman	Transmission Availability Data System (TADS) Reporting and Data Analysis 93
37	Mao Yang; Chunlin Yang	Uncertainty analysis of wind power prediction based on Granular Computing 100

38	Yuan Tian; Yan Hu; Jia Liu	Improved Analytic Model to Detect Hidden Failure of Protection Relays 105
39	Armando Leite da Silva; Muriell de Rodrigues e Freire; Fernando Aparecido de Assis; Luiz Antonio da Fonseca Manso	Transmission Expansion Planning Based on Relaxed N-1 Criteria and Reliability Indices 111
40	Armando Leite da Silva; Jose Filho da Costa Castro; Reinaldo Gonzalez-Fernandez	Spinning Reserve Assessment via Quasi-Sequential Monte Carlo Simulation with Renewable Sources 117
41	Enrica Scolari; Dimitri Torregrossa; Jean-Yves Le Boudec; Mario Paolone	Enhanced Computation of Ultra-Short-Term Prediction Intervals of PV AC Active Power 124
42	Mao Yang; QiongQiong Yang	Wind power forecast based on cloud model 132
44	Mao Yang; Jian Du	The analysis of independence of wind speed based on the probability of run-length 137
45	Haibo Bao; Hua Wei; Xiaoxuan Guo	Solutions to Probabilistic Analysis of Voltage Stability in Power Systems with Wind Farms Using Advanced Unscented Transformation 142
47	Athanasios Papakonstantinou; Pierre Pinson	Population Dynamics for Renewables in Electricity Markets: A Minority Game View 148
49	Milorad Papic; Ian Dobson	Comparing a Transmission Planning Study of Cascading with Historical Line Outage Data 154
50	Dan Li; Wei Yan; Wenyuan Li; Tao Chen	Estimation of the Probability Density Function of Renewable Power Production using a Hybrid Method of Minimum Frequency and Maximum Entropy 161
51	Wei Jia Tay; Qian ZHAO; Ashwin M Khambadkone	Unit Commitment Risk Evaluation of Power Systems with PV and Energy Storage 169

52	Zhen Liu; Wen-Li Liu; Gao-Can Su; Hejun Yang; Gang Hu	Wind-solar Micro Grid Reliability Evaluation Based on Sequential Monte Carlo 175
53	J. H. Zheng; X. Y. Quan; Z. X. Jing; Q. H. Wu	Stochastic Day-Ahead Generation Scheduling With Pumped-Storage Stations and Wind Power Integrated 181
54	J. J. Chen; Q. H. Wu	Probability Interval Optimization for Optimal Power Flow Considering Wind Power Integration 187
55	Zhongwen Li; Chuanzhi Zan; Peng Zeng; Haibin Yu; Hepeng Li	Two-stage Stochastic Programming Based Model Predictive Control Strategy for Microgrid Energy Management under Uncertainties 192
57	Ruili Ye; Zhizhong Guo; Ruiye Liu; Jiannan Liu	Short-term wind speed forecasting method based on wavelet packet decomposition and improved Elman neural network 198
59	Jan Henning Jürgensen; Lars Nordström; Patrik Hilber	A Review and Discussion of Failure Rate Heterogeneity in Power System Reliability Assessment 204
60	Peng Zhang; Chunyan Li; Qian Zhang	Wind Power Accommodation Considering the Prediction Error of Wind Power 212
61	Zhen Wang; Ding Feng; Sheng Lin; Zhengyou He	Research on Reliability Evaluation Method of Catenary of High Speed Railway Considering Weather Condition 220
62	JingRui Xie; Tao Hong	Comparing Two Model Selection Frameworks For Probabilistic Load Forecasting 226
64	Robert Brandalik; Dominik Waeresch; Wolfram H. Wellssow	Approximate Active Power Distributions for Standard Household Loads 231

65	Leonel Carvalho; João Teixeira; Manuel Matos	Modeling Wind Power Uncertainty in the Long-Term Operational Reserve Adequacy Assessment: a Comparative Analysis between the Naïve and the ARIMA Forecasting Models 237
68	CAN CHEN; PENGFEI CAO; CHEN SHEN; LINLIN WU; CHANAN SINGH	Probabilistic Analysis for Low Voltage Ride Through Data of Doubly Fed Induction Generators in China 243
69	Mao YANG; Shaoshuai WANG	A Review of Wind Power Forecasting & Prediction 248
70	Dajun Si; Qiming Sun; Libao Shi; Yingchun Qian; Wen Qian	Analysis of Cascading Failure Considering Load-shedding strategy and Failure Correlation 255
72	Euan Morris; Keith Bell; Ian Elders	Spatial and Temporal Clustering of Fault Events on the GB Transmission Network 261
74	Mingyang Sun; Ioannis Konstantelos; Goran Strbac	Transmission Network Expansion Planning With Stochastic Multivariate Load and Wind Modeling 270
75	Vijay Venu Vadlamudi; Camille Hamon; Oddbjørn Gjerde; Samuel Perkin; Gerd Kjølle	On Improving Data/Models on Corrective Control Failures for Use in Probabilistic Reliability Management 277
76	Phanuwat Phunkasem; Wijarn Wangdee; Bo Sriraphanth; Bundit Tanboonjit	Synchrophasor Data Availability Analyzer 283
77	Wijarn Wangdee; Wenyuan Li	Risk Pruning under Islanding Conditions Using Wind-Hydro Generation Coordination 289

78	Evelyn Heylen; Geert Deconinck; Dirk Van Hertem	Impact of Increased Uncertainty in Power Systems on Performance of Short Term Reliability Management 294
79	Samuel Perkin; Ragnar Kristjansson ; Hlynur Stefansson; Gudjon Bjornsson; Iris Baldursdottir; Magni Palsson; Efthymios Karangelos; Louis Wehenkel; Pall Jensson	Near real-life pilot testing of real-time probabilistic reliability assessments 300
80	Iver Bakken Sperstad; Arild Helseth; Magnus Korpås	Valuation of stored energy in dynamic optimal power flow of distribution systems with energy storage 306
82	Marie-Louise Kloubert; Johannes Schwippe	Benefits of coordinated control reserve activation and grid management – a probabilistic load flow analysis 314
83	Takeyoshi Kato; Yusuke Manabe; Toshihisa Funabashi; Keita Yoshiura; Muneaki Kurimoto; Yasuo Suzuoki	A Study on Several Hours Ahead Forecasting of Spatial Average Irradiance using NWP model and Satellite Infrared Image 321
84	Chi Zhang; Wenyuan Li; Juan Yu; Ruilin Xu	Modeling Impacts of PM 2.5 Concentration on PV Power Outputs 329
85	Noha Abdel-Karim; David Calderon; Thomas Coleman; John Moura	A Hybrid Probabilistic Assessment Using Different Renewable Penetration Scenarios in the North American Bulk Power System 336
86	Shucheng Liu; Wenxiong Huang; Yi Zhang	A Stochastic Production Simulation Model for Renewable Integration and System Flexibility Studies 341

87	H.Aysun KOKSAL; Aydogan Ozdemir	Determination of Optimal Component Maintenance Process for RCAM of Power Transmission System Using TOPSIS Method 349
88	Guanglin CAI; Yong LIN; Jijia HUAN; Ya CHEN; Bo HU; Bo LI	Reliability Evaluation of Medium Voltage Distribution Network with Private Electric Vehicle 355
108	Lukasz Wojdowski; George Anders	Substation Reliability Evaluation with Dependent Outages Using Bayesian Networks 363
115	Øystein Rognes Solheim; Gerd Kjølle; Thomas Trötscher	Wind dependent failure rates for overhead transmission lines using reanalysis data and a Bayesian updating scheme 369
120	Lili Wen, Manli Wang Ping Zhou, Qian Zhou, Bo Hu	Reliability evaluation of grid connected micro-grid considering demand 376
121	Liting Tian; Jianbo Guo; Lin Cheng	A Novel Method for Energy Storage Sizing Based on Time and Frequency Domain Analysis 381
128	Qianjin Gui; Xiangqian Huang; Dabo Zhang; Hejun Yang; Yigang He; Dequan Kong	The Reactive Power Optimization of Distribution Network based on Wind Power Output Scenario and Complete-bus Load 387
129	Keyan Liu; Tingting Zhao; Dongli Jia; Kaiyuan He; Fengzhan Zhao	Research on Probabilistic Reactive Power Optimization Considering the Randomness of Distribution Network 392
130	Shicong Deng; Bin Zhang; Juan Yu; Wei Lin; Wenyuan Li; Xuan Liu	Reliability Evaluation Based on Equivalent Method of Sensitivity Consistency and Component Particularity Representation 398

- | | | |
|-----|---|--|
| 131 | Fachi Chen;
Yi Dai;
Zhouyang Ren;
Wenyuan Li | A Spare Strategy of Circuit Breakers
Considering Aging Failures 403 |
| 132 | Yu Liu;
Kai Ba;
Qi Yao;
Yang Cui | Advanced Evaluation Method for Regional
Wind Power Prediction 408 |
| 133 | Arijit Bagchi;
Lalit Goel;
Peng Wang | Studying the Impacts of Incorporating Energy
Storage Devices into an Aggregated 413
Probabilistic Model of a Virtual Power Plant |
| 134 | Na Cao;
Shuangshuang Cao;
Qun Yu;
Qing He | Risk Measurement and Forewarning of Power
Blackouts Based on Entropy Theory 419 |
| 136 | Chen JIA;
Muke BAI;
Chao ZHANG;
Jing ZHOU;
Gongbo LIU;
Sheng XU;
Wei TANG;
Cong WU;
Chenjun SUN | Optimal Configuration of User Side Integrated
Energy System Based on Chance Constrained
Programming 425 |
| 137 | Zhao Yuan;
Mohammad Reza Hesamzadeh;
Yue Cui;
Lina Bertling Tjernberg | Applying High Performance Computing to
Probabilistic Convex Optimal Power Flow 433 |
| 138 | Shenghu Li;
Zhuang Qian;
Xiaoyan Zhang | Probabilistic short-circuit analysis of wind
power system based on sampling with optimal
density function 440 |

140	Jinli Wang; Yongmei Liu; Li Wang; Songhuai Du; Juan Su; Yating Cai; Tingting Fan; Haiou Guan	Spectrum Analysis Method of Residual Current Based on Hilbert-Huang Transform 447
141	Kai Hou; Hongjie Jia; Xiaodan Yu; Yawen Li; Chang Xie; Jianfeng Yan	Composite Generation and Transmission System Reliability Assessment Using Impact Increment-based State Enumeration Method 452
142	Zhichun Yang; Yu Shen; Fan Yang; Zilin Wan; Jun Zhang; Dongxu Wang; Wei Cai	Research on Online Monitoring and State Diagnosis of Battery for Distribution Automation 458
146	Musa Marbun; Ngapuli Sinisuka; Nanang Hariyanto	The Use of Markov Chain Method to Determine Spare Transformer Number with 3-Criteria Parameters 465
147	Sheng Xu; Wei Tang; Tao Yan; Yue Wang; Xianliang Zhang	A Multi-state Model for the Adequacy Assessment of an Autonomous Microgrid Based on Universal Generating Function 471
148	Lingling Huang; Jialin Cao; Yang Fu; Shurong Wei	Modeling of Operational Availability of offshore Wind Turbines 478
150	Oscar Gomez; George Anders; Carlos Zapata	Probabilistic-Based Identification of Coherent Generators 484

151	zhongqiang ding; yuxiang zhang; tao wang; qianggang wang; zhen lu; King Jet Tseng; peng wang	Condition Monitoring and Reliability Analysis of Power Systems for Underground Cavern Facilities 491
154	Xiaoxiao Li; Xin Zhang; Yunting Song; Wei Tang; Yinshun Wang; Jingjing Wang; Xiaofei Hu; Cheng Yang	Optimal Selection of High Voltage Transmission Connected to Island Systems 497
157	Chengquan Ju; Peng Wang	Optimal Power Flow with Worst-case Scenario Considering Uncertainties of Loads and Renewables 503
158	Yanglin Zhou; Feng Gao; Song Ci; Yang Yang;	Time-of-use Pricing in Retail Electricity Market: Step Tariff vs. Usage-based Schemes 510
159	SITKI GUNER; AYDOGAN OZDEMIR; GORKEM SERBES	Impact of Car Arrival/Departure Patterns on EV Parking Lot Energy Storage Capacity 515
160	Yunting SONG; Wei TANG; Linna ZHANG; Haitao YANG; Jingjing WANG; Ping JI; Xiaofei HU; Wenfei LIU; Xuxia LI; Cheng YANG; Ludeng LIU	Adequacy and Safety Comprehensive Evaluation for Ultra-high Voltage AC/DC Mixed Power Grid 520
161	Max Csef; Andrea Antenucci; Giovanni Sansavini	Impact of Spatio-Temporally Correlated Wind Generation on the Interdependent Operations of Gas and Electric Networks 526

- | | | |
|-----|--|--|
| 163 | Mayssam Amiri;
Bagen Bagen;
Aniruddha M. Gole | Probabilistic Analysis of the Effect of Wind Speed Variations on Power Quality of Power Systems 534 |
| 164 | Haiqiang Zhou;
Jizhu Guo;
Ping JU | Quasi Hamilton System Stochastic Averaging and EEAC Combined Transient Stability Analysis Method 540 |
| 165 | Pouya Amid;
Curran Crawford | Cumulant-based Probabilistic Load Flow Analysis of Wind Power and Electric Vehicles 545 |
| 166 | Chen Jiang;
Haobo Qiu;
Xiaoke Li;
Ning Ma;
Liang Gao;
Xiwen Cai | DATP-based sequential optimization and reliability assessment for RBDO 551 |
| 167 | Yunting SONG;
Wenfei LIU;
Gaoqiang QU;
Xin ZHANG;
Yinshun WANG;
Zongchuan ZHOU;
Xiaojing DONG;
Lijun ZHAO;
Ai WANG | Power Network Accidents Risk Assessment Based on Topology Structure 557 |
| 168 | Jian Wang;
Zong-xiang Lu;
Ying Qiao;
Guiping Zhu | Day-ahead Generation Schedule Model with Demand Response Considering the Secure and Economic Risks of Wind Power 563 |
| 169 | Alexander Rhein;
Gerd Balzer;
Raoul Boya;
Christoph Eichler | Multi-criteria Optimization of Maintenance and Replacement Strategies in Transmission Systems 569 |
| 170 | Tao CHENG;
Lei CHEN;
Fei XU;
Yuanhang DAI | Power Line Online Fault Warning Method Based on Operational Reliability and Decision Tree 575 |

- 171 Han Wang;
Xiaoyuan Xu;
Zheng Yan;
Zenghui Yang;
Nan Feng;
Yong Cui Probabilistic static voltage stability analysis
considering the correlation of wind power 579
- 173 Zafar Khan;
Dilan Jayaweera;
Hasan Gunduz Smart Meter Data Taxonomy for Demand
Side Management in Smart Grids 585
- 174 Chao Yan;
Giambattista Luca Lucarelli;
Zhaohong Bie;
Ding Tao;
Gengfeng Li; A Three-stage CE-IS Monte Carlo Algorithm
for Highly Reliable Composite System
Reliability Evaluation Based on Screening
Method 593
- 176 M. A. Matos;
R.J. Bessa;
C. Gonçalves;
L. Cavalcante;
V. Miranda;
N. Machado;
P. Marques;
F. Matos Setting the Maximum Import Net Transfer
Capacity under Extreme RES Integration
Scenarios 599
- 177 David Clements;
Pierluigi Mancarella;
Richard Ash Application of Time-Limited Ratings to
Underground Cables to Enable Life Extension
of Network Assets 606
- 178 Haixiang Xu;
Linlin Wu;
Hui Liu;
Ruoyang Wang;
Zhengpai Cui Research on the Periodicity of Wind Power
Based on the Maximum Entropy Spectrum
Estimation 613
- 179 Chen Liang;
Peng Wang;
Xiaoqing Han;
Wenping Qin;
Yanbing Jia Reliability and Efficiency-based Energy
Storage Sizing From the Aspect of System
Frequency 619

180	Kuanyin Tian; Peng Wang; Wenping Qin; Xiaoqing Han; Yanbing Jia; Chen Liang	Fatigue Reliability Analysis of Wind Turbines Shafts Caused by Sub-Synchronous Oscillations During Power System Fault 625
181	Ehsan Abbasi; Om P. Malik	Failure Rate Estimation of Power Transformers Using Inspection Data 631
182	YanBing Jia; Haidan He; Peng Wang; XiaoQing Han	Reliability Evaluation of Transmission System Based on Volnerablity Analysis 635
183	Heping Jia; Yi Ding; Yonghua Song; Weidong Liu; Lijun Zhang; Yikai Sun	Reliability Evaluation for Power Systems Considering Flexible Loads Utilizing Time-sequential Simulation Techniques 640
184	Jiangnan Cheng; Ning Zhang; Yi Wang; Chongqing Kang; Yuekai Tan; Zhijian Zeng; Min Luo	Evaluating the Spatial Correlations of Multi-Area Load Forecasting Errors 646
185	Xiaohui Ye; Wuzhi Zhong; Lin Cheng	Power System Risk Assessment Method Based on Dynamic Power Flow 652
187	Wenzu Wu; Kunjin Chen; Ying Qiao; Zongxiang Lu	Probabilistic Short-term Wind Power Forecasting Based on Deep Neural Networks 656
188	Xiaogang Wu; Zongxiang Lu; Ying Qiao; Rongfu Sun; Ruoyang Wang	Wind Power Correction Method Including Multiple Factors Such as Wind-Abandon Coefficient 664

- 189 Ervin Grebesh;
Anna Mutule;
Irina Oleinikova;
Artjoms Obushevs
Overhead line weak point mechanical analysis
based on Markov chain method. 671
- 190 Rodrigo A. de Marcos;
Javier Reneses;
Antonio Bello
Long-Term Spanish Electricity Market Price
Forecasting with Cointegration and VEC
Models 676
- 191 Markus Löschenbrand;
Magnus Korpås
An Agent Based Model of a Frequency
Activated Electricity Reserve Market 683
- 193 Sui Peng;
Junjie Tang;
Ruijin Liao;
Weizhou Wang
VSC's Reactive Power Limited Probabilistic
Power Flow for AC/DC Grids Incorporating
Uncertainties 691
- 194 Lin Cheng;
Xu Wang;
Yao Chang;
Fulong Song;
Yi Gao;
Ying Wang
Reliability Analysis Method of AC
Distribution Network with Multi-terminal DC
Interconnection 698
- 195 Tewei Xu;
Zongxiang Lu;
Yichao Huang;
Ruanming Huang;
Aili Pang
Reliability Assessment of Multiple-Voltage
Regional Transmission and Distribution
System Considering Substation Interior
Failure 704
- 196 Emanuele Ciapessoni;
Diego Cirio;
Andrea Pitto;
Nicolas Omont
Forecast uncertainty modeling and Data
Management for a cutting-edge Security
Assessment platform 710
- 197 Matteo Saviozzi;
Francesco Adinolfi;
Stefano Massucco;
Federico Silvestro;
Emanuele Ciapessoni;
Diego Cirio;
Andrea Pitto
Net Transfer Capacity Assessment Using
Point Estimate Method for Probabilistic Power
Flow 718

198	M. H. Vasconcelos; L. M. Carvalho; J. Meirinhos; N. Omont; P. Gambier-Morel; G. Jamgotchian; D. Cirio; E. Ciapessoni; A. Pitto; I. Konstantelos; G. Strbac; M. Ferraro; C. Biasuzzi	Online Security Assessment with Load and Renewable Generation Uncertainty: the iTesla Project Approach 725
199	Xiaohui Ye; Wuzhi Zhong; Xinli Song; Guoyang Wu; Tao Liu; Zhida Su	Review on Power System Cascading Failure Theory and Studies 733
200	Edgar Nuño; Nicolaos Cutululis	A heuristic for the synthesis of credible operating states in the presence of renewable energy sources 739
201	Wanxing Sheng; keyan Liu; Huanna Niu; Yuzhu Wang; Jingxiang Zhao	The Anomalous Data Identification Study of Reactive Power Optimization System Based on Big Data 746
202	Brandon Heath; John Lawhorn	Stochastic Generator Availability Modeling on Very Large Transmission Network Systems 751
203	Youjia Wang; Zongxiang Lu; Ying Qiao	Wind Power Curtailment Evaluation Based on EOF and Hierarchical Clustering Method 756
204	Manuel Chiumarulo; Sasa Z. Djokic; Roberto Langella; Alfredo Testa; Alfonso Turco	Supply Interruptions and Voltage Dips Assessment of Automated Distribution Systems 762

205	Ebrahim Shayesteh; Patrik Hilber	Reliability-Centered Asset Management Using Component Reliability Importance 770
209	Saeed Alyami; Yang Wang; Caisheng Wang	Overvoltage Risk Analysis in Distribution Networks with High Penetration of PVs 776
211	Fei Ni; Phuong Nguyen; Sjef Cobben; Junjie Tang	Application of Non-Intrusive Polynomial Chaos Expansion in Probabilistic Power Flow with Truncated Random Variables 782
213	Noha Abdel-Karim; Mark Lauby; David Calderon; John Moura; Thomas Coleman	Impact of Wind and Solar Variability on the Resource Adequacy for North American Bulk Power System 789
214	Yingmeng Xiang; Lingfeng Wang; Ruosong Xiao; Kaigui Xie	Impact of Network Topology Optimization on Power System Reliability 797
216	Qi Zeng; Ning Zhang; Yi Wang; Yuxiao Liu; Chongqing Kang; Zhijian Zeng; Wei Yang; Min Luo	An Optimum Regression Approach for Analyzing Weather Influence on the Energy Consumption 802
217	Haodi Li; Lingfeng Wang; Yingmeng Xiang; Jun Tan; Ruosong Xiao; Kaigui Xie; Yun Xia	Reliability Evaluation of Active Distribution Systems Considering Energy Storage and Real-Time Electricity Pricing 808
218	Yiming Li; Qingqing Liang; Yan Sun; Chunhao Lu	Probabilistic power flow considering variable bandwidth kernel density estimation for traction substation loads of high-speed railways 813

219	John Jiang; Chongqing Kang	A Comparative View of Risk Management in Financial Sector and in Next Generation Power Grid Operation 818
220	Kofi Afrifa Agyeman; Sekyung Han; Ryota Umezawa	A New Approach for Frequency Based Short-term Reliability for a Power System 824
221	Vasiliki Klonari; Aimilios Orfanos; Jacques Lobry; Francois Vallee	Probabilistic assessment of a distribution tariff scheme for incentivizing demand side management in the small energy usage sector 830
222	Swasti R. Khuntia; Jose L. Rueda Torres; Mart A.M.M van der Meijden	Volatility in Electrical Load Forecasting for Long-term Horizon – An ARIMA-GARCH Approach 838
223	Milad Izadi; Mohammad Farajollahi; Amir Safdarian; Mahmud Fotuhi-Firuzabad	A Multistage MILP-Based Model for Integration of Remote Control Switch into Distribution Networks 844
225	Ungjin Oh; Jaeseok Choi; Hag-hyeon Kim	Capacity Credit and Reasonable ESS Evaluation of Power System including WTGs combined with BESS 850
226	Meng Xu; Chris J Dent; Amy Wilson	Uncertainty quantification in power system reliability using a Bayesian framework 856
227	Lesia Mitridati; Pierre Pinson	Optimal Coupling of Heat and Electricity Systems: A Stochastic Hierarchical Approach 862
228	Yeonchan Lee; Jaeseok Choi; Myeunghoon Jung	User Friendly Generator Maintenance Scheduling Simulation System based on Probabilistic Methodology 868
229	Gamze Dogan; Pierre-Etienne Labeau; Jean-Claude Maun; Jonathan Sprooten; Manuel Galvez; Kristof Sleurs	Discrete forecast error scenarios methodology for grid reliability assessment in short-term planning 874

230	Marko Cepin	House Events Matrix for Shutdown Probabilistic Safety Assessment 883
231	Meng Xu; Chris J Dent; Amy Wilson	Zonal operating reserve demand curve applied to day-ahead deterministic unit commitment 889
232	Lan Luo; Xia Zhao; Xinyi Li; Wei Yan; Guoping Liu; Ping Zhou; Lili Wen	Effects of Uncertainties in Frequency Regulations on Probabilistic Power Flow Analysis 896
233	Mohammed Benidris; Joydeep Mitra; Chanan Singh	Impacts of Transient Instability on Power System Reliability 902
235	Duy-Phuong N. Do; Ungjin Oh; Yeonchan Lee; Jaeseok Choi; Trung-Tinh Tran	Probabilistic Evaluation of Long-term Stability Considering Secondary Contingency ScenariosSecondary Contingency Scenarios 908
237	Vasiliki Klonari; Bashir Bakhshideh Zad; Jacques Lobry; François Vallee	Application of Voltage Sensitivity Analysis in a Probabilistic Context for Characterizing Low Voltage Network Operation 913
238	Chris Dent; Ramteen Sioshansi; John Reinhart; Amy Wilson; Stan Zachary; Muireann Lynch; Cindy Bothwell; Chris Steele	Capacity Value of Solar Power 920
239	Fan Chen; Haitao Liu; Jun Li; Zheng Huang	Reactive Power Adequacy Assessment of Composite Power System Based on Interior Point Method and Genetic Algorithm 927

- 240 Sarah Sheehy;
Gruffudd Edwards;
Behzad Kazemtabrizi;
Chris Dent;
Matthias Troffaes;
Simon Tindemans
Impact of High Wind Penetration on
Variability of Unserved Energy in Power
System Adequacy 932
- 241 S. Jalal Kazempour;
Pierre Pinson
Effects of Risk Aversion on Market
Outcomes: A Stochastic Two-Stage
Equilibrium Model 938
- 242 Yeonchan Lee;
Duy-Phuong N. Do;
Ungjin Oh;
Jaeseok Choi;
Junmin Cha;
Hongseok Choi;
Dong-hoon Jeon
Relation formulation between daily and hourly
load curve based Loss of Load Expectation
Indices 944
- 243 Yuting Tian;
Mohammed Benidris;
Samer Sulaeman;
Salem Elsaiah;
Joydeep Mitra
Optimal Feeder Reconfiguration and
Distributed Generation Placement for
Reliability Improvement 950
- 245 Ahmed Salloum;
Yousef Al-Abdullah;
Kory Hedman;
Vijay Vittal
Risk-Based Penalty Price Determination
Procedure for Transmission Constraint
Relaxations 957
- 246 youping fan;
dai zhang
Reliability Evaluation of Power Systems
Incorporating Maintenance Policy with Partial
Information 963
- 247 Martin N. Hjelmeland;
Camilla T. Larsen;
Magnus Korpås;
Arild Helseth
Provision of rotating reserves from wind
power in a hydro-dominated power system 968
- 249 Sajeesh Babu;
Ebrahim Shayesteh;
Patrik Hilber
Analysing Correlated Events in Power System
Using Fault Statistics 975

250	Farzaneh Pourahmadi; Mohammad Jooshaki; Seyed Hamid Hosseini	A Dynamic Programming-Based Heuristic Approach for Optimal Transmission Switching Problem With N-1 Reliability Criterion 981
251	Nga Nguyen; Mohammed Benidris; Joydeep Mitra	A Unified Analysis of the Impacts of Stochasticity and Low Inertia of Wind Generation 988
252	Ruosong Xiao; Yingmeng Xiang; Lingfeng Wang; Kaigui Xie	Bulk Power System Reliability Evaluation Considering Optimal Transmission Switching and Dynamic Line Thermal Rating 995
253	Mustafa Demiroglu; Ramazan Caglar; Tuğba N. Demiroglu	Wind Farm Dynamic Analysis in terms of Turkish Grid Codes 1000
254	Ming Wang; Yingmeng Xiang; Lingfeng Wang; Jie Jiang; Ruosong Xiao; Kaigui Xie	Identification of Critical Line-Generation Combinations for Hypothesized Joint Line-Generation Attacks 1009
255	Yingmeng Xiang; Lingfeng Wang; Nian Liu; Ruosong Xiao; Kaigui Xie	A Resilient Power System Operation Strategy Considering Presumed Attacks 1015
256	Leonardo Bremermann; Mauro Rosa; Leonel Carvalho; Pablo Galvis; Caio Nakasone; Fernando Santos	Using VaR and CVaR Techniques to calculate the Long-term Operational Reserve 1021
257	Mauro Rosa; Gabriel Bolacell; Ivo Costa; Diego Issicaba; Dianne Calado	Impact Evaluation of the Network Geometric Model on Power Quality Indices using Probabilistic Techniques 1028

258	Can Bikcora; Nazir Refa; Lennart Verheijen; Siep Weiland	Prediction of Availability and Charging Rate at Charging Stations for Electric Vehicles 1036
260	Tamara Becejac; Payman Dehghanian; Mladen Kezunovic	Probabilistic Assessment of PMU Integrity for Planning of Periodic Maintenance and Testing 1042
261	Yizheng Liao; Yang Weng; Chin-Woo Tan; Ram Rajagopal	Urban Distribution Grid Line Outage Identification 1048
262	Difei Tang; Peng Wang; Qiuwei Wu	Probabilistic Modeling of Nodal Electric Vehicle Load due to Fast Charging Stations 1056
263	Saeed Heidari; Mahmud Fotuhi-Firuzabad	Reliability Evaluation in Power Distribution System Planning Studies 1063
265	Seyed Ahmad Haji Seyed Olia; Mohammad Jooshaki; Moein Moeini-Aghtaie; Mahmud Fotuhi-Firuzabad	Developing a Multi-Objective Framework for Planning Studies of Modern Distribution Networks 1069
266	Zohreh Parvini; Ali Abbaspour; Mahmud Fotuhi-Firuzabad; Moein Moeini-Aghtaie	An Analytical Framework for Operational Reliability Studies of Highly Wind Integrated Power Systems 1075
267	Per Westerlund; Patrik Hilber; Tommie Lindquist; Svenska kraftnät	Prediction of current in a substation in order to schedule thermography 1081
269	Pierre Pinson	Introducing Distributed Learning Approaches in Wind Power Forecasting 1088
277	Kaigui Xie; Shuwei Miao; Yun Xia; Yinghao Ma; Yanlin Li	A Two-stage Wind Speed Model for Multiple Wind Farms Considering Autocorrelations and Cross-correlations 1094

Lin Cheng;
Chen Liu;
Qiang Wu;
Song Gao

A stochastic Optimal Model of Micro Energy
Internet Contains Rooftop PV and CCHP
System 1100