

2015 IEEE Power & Energy Society Innovative Smart Grid Technologies Conference

(ISGT 2015)

**Washington, DC, USA
18-20 February 2015**



**IEEE Catalog Number: CFP15ISG-POD
ISBN: 978-1-4799-1786-0**

ISGT 2015 Table of Contents

Distribution I

[ISGT2015-000045.PDF, A Simple Control Method of Waterworks Pump Power Consumption for Demand Response](#) 1
Masaki Imanaka; Jumpei Baba; Chihiro Tobaru; Masanori Shimabuku and Yuma Uezu

[ISGT2015-000083.PDF, Randomized Automated Demand Response for Real-Time Pricing](#) 6
Shun-ichi Azuma; Tsuyoshi Nakamaoto; Shinsaku Izumi; Taichi Kitao and Ichiro Maruta

[ISGT2015-000189.PDF, A Game Theoretic Software Framework for Optimizing Demand Response](#) 11
Wolfgang Lausenhammer; Dominik Engel and Robert Green

[ISGT2015-000247.PDF, A Dynamic Simulation Tool for Estimating Demand Response Potential from Residential Loads](#) 16
Brandon Johnson; Michael Starke; Omar Abdelaziz; Roderick Jackson and Leon Tolbert

[ISGT2015-000230.PDF, Demand Side Management in a Group of Smart Energy Hubs as Price Anticipators; the Game Theoretical Approach](#) 21
Aras Sheikhi; Mohammad Rayati; Shahab Bahrami and AliMohammad Ranjbar

Distribution II (Voltage)

[ISGT2015-000122.PDF, Network Clustering for Voltage Control in Active Distribution Network Including Energy Storage Systems](#) 26
Maryam Bahramipanah; Mostafa Nick; Rachid Cherkaoui and Mario Paolone

[ISGT2015-000154.PDF, Optimal Planning of Parking Lots and Demand Response Programs in Distribution Network Considering Power Loss and Voltage Profile](#) 31
Amin Mohsenzadeh; Samaneh Pazouki; Chengzong Pang and Mahmoudreza Haghifam

[ISGT2015-000232.PDF, A Scheme for Coordinated Secondary Voltage Control for Systems with Multiple VAr Reserves](#) 36
Dinh Thuc Duong; Lester Kalemba; Kjetil Uhlen and Stig Løvlund

[ISGT2015-000260.PDF, The Basic Study for Development of a Method for Determining the LDC Parameters of LRT and SVR Using PV Output Forecasting](#) 41
Shunsuke Kawano; Shinya Yoshizawa; Yu Fujimoto and Yasuhiro Hayashi

[ISGT2015-000145.PDF, Optimized Regulation of Dispersed Generation Units for Minimization of Reactive Power Consumption](#) 46
Peter Franz; Ingo Sgoff; Ignacio Talavera and Jutta Hanson

[ISGT2015-000206.PDF, Impact of Wind Turbine Generator Type in Large-Scale Offshore Wind Farms on Voltage Regulation in Distribution Feeders](#) 51
Amirhossein Sajadi; Richard Kolacinski and Kenneth A. Loparo

[ISGT2015-000315.PDF, Integration of Energy Storage for Voltage Support in Smart Distribution Systems](#) N/A
J. O. Petirin and Mohamed Shaaban

International Experience

[**ISGT2015-000035.PDF, Controlling Electric Vehicle Charging Points for Congestion Management of UK LV Networks**](#) **61**

Kyriacos Petrou; Jairo Quiros-Tortos and Luis F. Ochoa

[**ISGT2015-000040.PDF, Initial Assessment of Voltage-Led Demand Response from UK Residential Loads**](#) **66**

Andrea Ballanti and Luis Ochoa

[**ISGT2015-000118.PDF, VI-DMS**](#) **71**

Serdar Ozbuber and Mustafa Bagriyanik

[**ISGT2015-000128.PDF, Real-Time State Estimation of the EPFL-Campus Medium-Voltage Grid by Using PMUs**](#) **76**

Marc Pignati; Miroslav Popovic; Sergio Barreto; Rachid Cherkaoui; German Dario Flores; Jean-Yves Le Boudec; Maaz Mohiuddin; Mario Paolone; Paolo Romano; Styliani Sarri; Teklemariam Tesfay; Dan-Cristian Tomozei and Lorenzo Zanni

[**ISGT2015-000211.PDF, Increasing the PV Hosting Capacity of LV Networks: OLTC-Fitted Transformers Vs. Reinforcements**](#) **81**

Alejandro Navarro Espinosa and Luis F. Ochoa

[**ISGT2015-000246.PDF, Understanding LV Network Voltage Distribution- UK Smart Grid Demonstration Experience**](#) **86**

Chen Zhao and Chenghong Gu

ISGT Poster Session

[**ISGT2015-000036.PDF, Dynamic Modeling and Stability Analysis of Grid-Connected and Autonomous Distributed Generation System**](#) **91**

Fei Ding and Kenneth Loparo

[**ISGT2015-000041.PDF, New Generation System Concept: Motor-Assisted Gas Turbine with Pulse Width Modulation Interleaving Motor Drive**](#) **96**

Aung Ko Thet; Noriaki Hino and Naohiro Kusumi

[**ISGT2015-000044.PDF, Analytical Performance Analysis of a Large-Scale RF-Mesh Smart Meter Communication System**](#) **101**

Filippo Malandra and Brunilde Sansò

[**ISGT2015-000053.PDF, Clustering Based Online Identification of Secondary Dynamic Parameters for Measurement Based Composite Load Modeling**](#) **106**

Shuqing Zhang

[**ISGT2015-000078.PDF, Congestion Relief Using Grid Scale Batteries**](#) **111**

Jagabondhu Hazra; Manikandan Padmanaban; Fauzi Zaini and Liyanage Chandratilake De Silva

[**ISGT2015-000088.PDF, Impact of Partitioning on the Performance of Decomposition Methods for AC Optimal Power Flow**](#) **116**

Junyao Guo; Gabriela Hug and Ozan Tonguz

[**ISGT2015-000089.PDF, Effect of Different Load Models on the Three-Sample Based Quadratic Prediction Algorithm**](#) **121**

Anamitra Pal

[**ISGT2015-000124.PDF, Sensor Placement for Optimal Estimation in Power Distribution Grids**](#) **126**

Francesco Fusco and Jonas Villumsen

[**ISGT2015-000141.PDF, Robust Generation Dispatch with Wind Power Considering Air Pollutant Dispersion**](#) 131
Shunbo Lei; Yunhe Hou; Xi Wang and Kai Liu

[**ISGT2015-000148.PDF, Optimal Multi-Objective Allocation and Scheduling of Multiple Battery Energy Storages for Reducing Daily Marginal Losses**](#) N/A
Ali Moeini; Innocent Kamwa and Martin de Montigny

[**ISGT2015-000153.PDF, A Power Hardware-In-The-Loop Framework for Advanced Grid-Interactive Inverter Testing**](#) 141
Anderson Hoke; Sudipta Chakraborty and Thomas Basso

[**ISGT2015-000158.PDF, Consensus-Based Distributed Optimal Power Flow Algorithm**](#) 146
Mouhacine Benosman; Jie Liu and A. U. Raghunathan

[**ISGT2015-000160.PDF, Static Stability Indexes for Classification of Power System Time-Domain Simulations**](#) 151
Felix Rafael Segundo Sevilla and Luigi Vanfretti

[**ISGT2015-000162.PDF, Experiences with Dynamic PMU Compliance Testing Using Standard Relay Testing Equipment**](#) 156
Jako Kilter; M. Shoaib Almas; Ivo Palu and Luigi Vanfretti

[**ISGT2015-000163.PDF, Coherency-Independent Structured Model Reduction of Power Systems**](#) 161
Christopher Sturk; Luigi Vanfretti; Yuwa Chompoobutrgool and Henrik Sandberg

[**ISGT2015-000166.PDF, A Dynamic Model of the Combined Electricity and Natural Gas Markets**](#) 162
Sandra Jenkins; Anuradha Annaswamy; Jacob Hansen and Jesper Knudsen

[**ISGT2015-000167.PDF, Locating Type-1 UEPs Via Tracing the Minimum Energy Path on the Energy-Like Lyapunov Function**](#) 167
Honghao Zheng and Christopher L. DeMarco

[**ISGT2015-000168.PDF, SVM Based Cloud Classification Model Using Total Sky Images for PV Power Forecasting**](#) 173
Zhao Zhen; Fei Wang; Yujing Sun; Zengqiang Mi; Chun Liu; Bo Wang and Jing Lu

[**ISGT2015-000169.PDF, Locational Security Impact Factors for Risk-Constrained AC OPF**](#) 178
Dmitry Shchetinin and Gabriela Hug

[**ISGT2015-000177.PDF, Battery Pricing Under Uncertain Demand Management**](#) 183
Yanyi He; Ratnesh Sharma and Mohammad C. Bozchalui

[**ISGT2015-000182.PDF, Multi-Objective Lyapunov-Based Control of a STATCOM/BESS**](#) 189
Stefanos Baros and Marija Ilic

[**ISGT2015-000190.PDF, Online Short-Term Forecasting of Photovoltaic Energy Production**](#) 194
Aleksandra Rashkovska; Jošt Novljan; Miha Smolnikar; Mihael Mohorcic and Carolina Fortuna

[**ISGT2015-000195.PDF, Fault Detection and Isolation in a DC Microgrid Using a Central Processing Unit**](#) 199
Grace Madingou; Mahyar Zarghami and Mohammad Vaziri

[**ISGT2015-000202.PDF, The Effect of Load Model Composition on N-1 Contingency Ranking**](#) 204
Hema Retty; James S. Thorp and Virgilio Centeno

[**ISGT2015-000218.PDF, A Unified Platform Enabling Power System Circuit Model Data Transfer Among Different Software**](#) 209
Arash Khoshkbar-Sadigh; Mojtaba Heydari; Marco Tedde; Reza Arghandeh; Keyue Smedley and Alexandra Meier

[**ISGT2015-000219.PDF, The Necessity of Time-Series Simulation for Investigation of Large-Scale Solar Energy Penetration**](#) 214

Arash Khoshkbar-Sadigh and Keyue Smedley

[**ISGT2015-000221.PDF, Incremental Cost Consensus\(ICC\) and Leaderless ICC Implementations in FREEDM**](#) 219

Li Feng; Bruce McMillin; Anthony Santiago and Ziang (John) Zhang

[**ISGT2015-000233.PDF, Applying Reinforcement Learning Method to Optimize an Energy Hub Operation in the Smart Grid**](#) 224

Mohammad Rayati; Aras Sheikhi and AliMohammad Ranjbar

[**ISGT2015-000235.PDF, Energy Hub Optimal Sizing in the Smart Grid; Machine Learning Approach**](#) 229

Aras Sheikhi; Mohammad Rayati and AliMohammad Ranjbar

[**ISGT2015-000242.PDF, Fine-Scale Volatility-Based Economic Dispatch for Smart Grid Edge Networks**](#) 234

Navid Khajehzadeh; Sergey Samokhin and Paul Flikkema

[**ISGT2015-000243.PDF, Distributed Sustainable Generation Dispatch Via Evolutionary Games**](#) 239

Pirathayini Srikantha and Deepa Kundur

[**ISGT2015-000244.PDF, Solar Disaggregation Using Whole-House Consumption Signals**](#) N/A

Abhay Gupta

[**ISGT2015-000252.PDF, An Algorithmic Interactive Planning Framework in Support of Sustainable Technologies**](#) 248

Marija Prica; Marija Ilic and Jovan Ilic

[**ISGT2015-000254.PDF, Systematic Testing and Comparison of Deterministic and Stochastic Unit Commitment on an 8-Zone Test Case Based on ISO New England Data**](#) 253

Wanning Li; Dheepak Krishnamurthy and Leigh Tesfatsion

[**ISGT2015-000256.PDF, A Probabilistic Approach for Smart Distribution Networks Planning**](#) N/A

Geev Mokryani and Bikash Pal

[**ISGT2015-000257.PDF, Design and Validation of a Communication and Control System for a 20MVA Hardware-In-The-Loop Renewable Energy Test Facility**](#) 263

Mark McKinney; J. Curtiss Fox and Ben Gislason

[**ISGT2015-000259.PDF, Linear Analysis for Determining and Visualizing Critical Thermal Boundaries of Power Systems**](#) 268

Robert Entriken; Walter Murray and Tomas Tinoco De Rubira

[**ISGT2015-000262.PDF, Combining SCADA, CIM, GridLab-D and Akka for Smart Grid Co-Simulation**](#) 273

Denis Bytschkow; Martin Zellner and Markus Duchon

[**ISGT2015-000278.PDF, Partitioned Linear State Estimation**](#) 278

Paroma Chatterjee; Anamitra Pal; James S. Thorp and Jaime De La Ree

[**ISGT2015-000280.PDF, Nonlinear State Estimation**](#) 283

Hossein Darvish and Xin Wang

[**ISGT2015-000282.PDF, Demand Response**](#) 288

Hossein Darvish; Atena Davishi and Hossein Hejazi

[**ISGT2015-000283.PDF, Optimal Power Flow with Limited and Discrete Controls**](#) 293

Walter Murray; Tomas Tinoco De Rubira and Adam Wigington

[**ISGT2015-000292.PDF, 3D Layout Optimization for Large Wind Farms**](#) 298

Jagabondhu Hazra; Subhadip Mitra; Sathyajith Mathew and Fauzi Zaini

[**ISGT2015-000299.PDF, A Novel Spiral Back-Off Mechanism for Wireless Sensor Networks MAC Protocol in Smart Grid System**](#) 303

S.M Sadakatul Bari and Musse Ahmed

[**ISGT2015-000320.PDF, Assessment of Congestion Management Potential in Distribution Networks Using Demand-Response and Battery Energy Storage**](#) 308

Daniel Brodén and Claes Sandels

[**ISGT2015-000322.PDF, A Joint Bidding and Operation Strategy for Battery Storage in Multi-Temporal Energy Markets**](#) 318

Seyed Hossein Akhavan Hejazi; Babak Asghari and Ratnesh Sharma

[**ISGT2015-000324.PDF, Integration of IEC 61850 Into a Vehicle-To-Grid System with Networked Electric Vehicles**](#) 323

Rui Huang; Yubo Wang; Wenbo Shi; Daoyuan Yao; Boyang Hu; Chi-Cheng Chu and Rajit Gadh

[**ISGT2015-000332.PDF, Modeling and Analysis of Self-Excited Induction Generator for Wind Energy Conversion**](#) 328

Tarekt Masaud and Pankaj K. Sen

[**ISGT2015-000345.PDF, Requirements on Communication and Control Systems for HVDC Grids**](#) N/A

Lars Nordstrom and Davood Babazadeh

Markets

[**ISGT2015-000039.PDF, Algorithm for Optimal Real-Time Pricing Based on Switched Markov Chain Models**](#) 338

Koichi Kobayashi and Kunihiko Hiraishi

[**ISGT2015-000046.PDF, A Functional Approach to Assessing Flexible Ramping Products' Impact on Electricity Market**](#) 343

Chenyue Wu; Gabriela Hug and Soummya Kar

[**ISGT2015-000135.PDF, Bidding Strategy in Energy and Spinning Reserve Markets for Aluminum Smelters' Demand Response**](#) 348

Xiao Zhang and Gabriela Hug

[**ISGT2015-000150.PDF, Toward Design of Risk-Based Real-Time Dispatch at Value**](#) 353

Xiaoqi Yin; Marija Ilic and Bruno Sinopoli

[**ISGT2015-000326.PDF, EV Charging Algorithm Implementation with User Price Preference**](#) 358

Bin Wang; Boyang Hu; Charlie Qiu; Peter Chu and Rajit Gadh

[**ISGT2015-000343.PDF, Multi-Stage Coupon Incentive-Based Demand Response in Two-Settlement Electricity Markets**](#) 363

Haiwang Zhong; Le Xie; Qing Xia; Chongqing Kang and Saifur Rahman

[**ISGT2015-000093.PDF, Monetary Impact of Dynamic Pricing and Demand Response on Households: The Winners and Losers**](#) 368

Matti Mononen; Antti Rautiainen; Jukka Saarenpää; Mikko Kolehmainen and Harri Niska

[**ISGT2015-000131.PDF, Participation of Customers in Active Demand Side Participation Programs Under Different Pricing Schemes**](#) N/A

Han Xu and Ivana Kockar

Microgrid I

[ISGT2015-000212.PDF, Microgrid Automation Assisted by Synchrophasors](#) 378

Mehmet Cintuglu; Ahmed Elsayed and Osama Mohammed

[ISGT2015-000255.PDF, A Decision Tree Based Approach for Microgrid Islanding Detection](#) 383

Riyasat Azim; Yongli Zhu; Hira Amna Saleem; Kai Sun; Fangxing Li; Di Shi and Ratnesh K. Sharma

[ISGT2015-000179.PDF, A Novel Passive Islanding Detection Technique for Converter-Based Distributed Generation Systems](#) 388

Bikiran Guha; Rami Haddad and Youakim Kalaani

[ISGT2015-000272.PDF, A Technical and Economical Study of Implementing a Micro-Grid System at an Educational Institution](#) 393

Matthew Purser; Youakim Kalaani and Rami Haddad

[ISGT2015-000287.PDF, Employing Price-Responsive PEVs in Microgrid: Optimal Operations and Security Management](#) 398

Sajjad Abedi; Miao He and Seyed Fatemi

PMU and Wide Area I

[ISGT2015-000049.PDF, Current Measurements to Obtain State Estimation](#) 403

George Kusic

[ISGT2015-000134.PDF, Optimal Selected Phasor Measurement Units for Identifying Multiple Line Outages in Smart Grid](#) 408

Jie Wu; Jinjun Xiong; Prasenjit Shil and Yiyu Shi

[ISGT2015-000201.PDF, Development and Evaluation of a Laboratory Based Phasor Measurement Devices](#) 413

Ali Mazloomzadeh; Osama Mohammed and Mehmet Cintuglu

[ISGT2015-000222.PDF, Area Angle Can Monitor Cascading Outages with Synchrophasors](#) 418

Atena Darvishi and Ian Dobson

[ISGT2015-000253.PDF, Local Detection of Voltage Imbalance in Three-Phase Power Systems Based on PMU Output](#) 423

Ricky Concepcion; Tirza Routtenberg and Lang Tong

Cybersecurity I

[ISGT2015-000137.PDF, Modeling Distributed Denial of Service Attack in Advanced Metering Infrastructure](#) 428

Yonghe Guo; Chee-Wooi Ten; Shiyan Hu and Wayne W. Weaver

[ISGT2015-000175.PDF, A Resilient Feedback Linearization Control Scheme for Smart Grids Under Cyber-Physical Disturbances](#) 433

Eman Hammad; Abdallah Farraj and Deepa Kundur

[ISGT2015-000239.PDF, Denial of Service Attacks and Mitigation for Stability in Cyber-Enabled Power Grid](#) 438

Pirathayini Srikantha and Deepa Kundur

[ISGT2015-000285.PDF, Data Attacks on Power Grids: Leveraging Detection](#) 443

Deepjyoti Deka; Ross Baldick and Sriram Vishwanath

[ISGT2015-000311.PDF, Power Grid Adequacy Evaluation Involving Substation Cybersecurity Issues](#) 448
Yingmeng Xiang; Lingfeng Wang and Yichi Zhang

Distribution III

- [ISGT2015-000127.PDF, The Geographical Aspect of Flexibility in Distribution Grids](#) 453
Konstantinos Kouzelis; Birgitte Bak Jensen and Jayakrishnan R. Pillai
- [ISGT2015-000151.PDF, "Zoning Reconfiguration for Coordinated Voltage Regulation in Future Transmission Grids"](#) 458
Varvara Alimisis; Chiara Piacentini and Philip Taylor
- [ISGT2015-000176.PDF, A Generalized Admittance Based Method for Fault Location Analysis of Distribution Systems](#) 463
Zhenyu Tan; Hongbo Sun; Daniel Nikovski; Tomihiro Takano; Yasuhiro Kojima and Tetsufumi Ohno
- [ISGT2015-000266.PDF, Big Data Analytics in Power Distribution Systems](#) 468
Nanpeng Yu; Sunil Shah; Raymond Johnson; Robert Sherick; Mingguo Hong and Kenneth Loparo
- [ISGT2015-000319.PDF, Distribution Network Topology Detection with Time-Series Measurements](#) 473
Guido Cavraro; Reza Arghandeh; Grazia Barchi and Alexandra Von Meier

Electric Vehicles

- [ISGT2015-000009.PDF, A Statistical Modelling and Analysis of Residential Electric Vehicles' Charging Demand in Smart Grids](#) 478
Farshad Rassaei; Wee-Seng Soh and Kee-Chaing Chua
- [ISGT2015-000020.PDF, Leveraging Reliability-Differentiated Pricing for Integrating PHEVs Into Residential Distribution Grid](#) 483
Jun Tan and Lingfeng Wang
- [ISGT2015-000028.PDF, A Novel Stochastic Modelling Approach for Electric Vehicle Charging Power and Energy Requirements](#) 488
Amir Fazeli; C. Mark Johnson; Mark Sumner and Edward Christopher
- [ISGT2015-000181.PDF, Optimal Renewable Energy Transfer Via Electrical Vehicles](#) 493
Abdurrahman Arikan; Ruofan Jin; Bing Wang; Song Han; Krishna R. Pattipati; Ping Yi and Ting Zhu
- [ISGT2015-000191.PDF, Electric Vehicle Charging Preferences Impact on Aggregated Load Profile](#) N/A
Pia Grahn; Joakim Widén and Lennart Söder
- [ISGT2015-000314.PDF, Adequacy Evaluation of Residential Distribution Network with PHEVs Penetration](#) 503
Zhu Wang and Lingfeng Wang

Microgrid II

- [ISGT2015-000054.PDF, When Order Matters: Communication Scheduling for Current Injection Control in Micro Grids](#) 508
Riccardo Bonetto; Stefano Tomasin and Michele Rossi

[ISGT2015-000087.PDF, Dynamic Frequency Control Strategy of Wind/Photovoltaic/Diesel Micro-Grid Based on DFIG Virtual Inertia Control and Pitch Angle Control](#) N/A

Jingjing Zhao; Xue Lv; Yang Fu and Xiaoguang Hu

[ISGT2015-000210.PDF, Reliability-Constrained Self-Organization and Energy Management Towards a Resilient Microgrid Cluster](#) 518

Miao He and Michael Giesselmann

[ISGT2015-000258.PDF, An Integrated Utility Microgrid Test Site Ecosystem Optimized by an Open Interoperable Distributed Intelligence Platform](#) 523

Aleksandar Vukojevic; Stuart Laval and Jason Handley

[ISGT2015-000284.PDF, Improved Estimation Methods for Lead Acid Utility Arrays for Microgrids](#) 528

Christopher Lashway and Osama Mohammed

Off Nominal

[ISGT2015-000024.PDF, Diversity of Cascading Failure Processes in Electrical Grids](#) 533

Yihai Zhu; Jun Yan; Yufei Tang; Yan Sun and Haibo He

[ISGT2015-000094.PDF, Locating Double-Line-To-Ground Faults Using Hybrid Current Profile Approach](#) 538

Anamika Dubey; Hongbo Sun; Daniel Nikovski; Tomihiro Takano; Yasuhiro Kojima and Tetsufumi Ohno

[ISGT2015-000121.PDF, Disconnection Detection Method for Power Distribution Lines Using Smart Meters](#) 543

Shoichi Kitamura; Tomihiro Takano; Yoshio Izui and Nobuhiko Itaya

[ISGT2015-000133.PDF, Identification of Critical Components of Composite Power Systems Using Minimal Cut Sets](#) 548

Badr Lami and Kankar Bhattacharya

[ISGT2015-000267.PDF, Reliability Analysis of Distribution Systems Considering Service Restoration](#) 553

Yin Xu; Chen-Ching Liu and Haixiang Gao

[ISGT2015-000286.PDF, Structural Vulnerability of Power Grids to Disasters: Bounds and Reinforcement Measures](#) 558

Deepjyoti Deka and Sriram Vishwanath

[ISGT2015-000288.PDF, Singular Value Decomposition in Geomagnetically Induced Current Validation](#) 563

Maryam Kazerooni; Hao Zhu and Thomas Overbye

PMU and Wide Area II

[ISGT2015-000011.PDF, Stability Analysis of Wide-Area Damping Control System with Stochastic Communication Time Delay](#) 568

Xinran Zhang; Chao Lu and Yingduo Han

[ISGT2015-000025.PDF, Research on Perception of Power System State Based on WAMS](#) 573

Yunfeng Cheng and Chao Lu

[ISGT2015-000159.PDF, A Cyber-Enabled Stabilizing Controller for Resilient Smart Grid Systems](#) 578

Abdallah K. Farraj; Eman M. Hammad and Deepa Kundur

[ISGT2015-000164.PDF, Real-Time Data Mediation for Synchrophasor Application Development Compliant with IEEE C37.118.2](#) 583

Luigi Vanfretti; Iyad Al Khatib and M. Shoaib Almas

[**ISGT2015-000203.PDF, Simulation Approach to Reliability Analysis of WAMPAC System**](#) 588

Yan Zhang; Mats Larsson; Nina Thornhill and Bikash Pal

Buildings

[**ISGT2015-000016.PDF, Building Comfortability and Computation Schedulability: A Comparative Study**](#) 593

Gopinath Karmakar

[**ISGT2015-000123.PDF, Predictability of Energy Characteristics for Cooling, Ventilation and Heating Systems in Sports Facilities**](#) 598

Mischa Schmidt; Anett Schülke; Alberto Venturi and Roman Kurpatov

[**ISGT2015-000224.PDF, PV Generation and Demand Mismatch: Evaluating the Potential of Residential Storage**](#) 603

Valentin Muenzel; Julian de Hoog; Iven Mareels; Arun Vishwanath; Shivkumar Kalyanaraman and Andrew Gort

[**ISGT2015-000250.PDF, Home Energy Management as a Service Over Networking Platforms**](#) 608

Korosh Vatanparvar; Quan Chau and Mohammad Abdullah Al Faruque

[**ISGT2015-000313.PDF, Control Strategy Optimization for Energy Efficiency and Comfort Management in HVAC Systems**](#) 613

Rui Yang and Lingfeng Wang

Cybersecurity II

[**ISGT2015-000317.PDF, On Using Energy Storage Systems in Switching Attacks That Destabilize Smart Grid Systems**](#) 618

Abdallah Farraj and Deepa Kundur

[**ISGT2015-000227.PDF, The Effects of Flooding Attacks on Time-Critical Communications in the Smart Grid**](#) 623

Qinghua Li; Chase Ross; Jing Yang; Jia Di; Juan Balda and Alan Mantooth

[**ISGT2015-000249.PDF, Dynamic Load Altering Attacks in Smart Grid**](#) 628

Sajjad Amini; Hamed Mohsenian-Rad and Fabio Pasqualetti

[**ISGT2015-000312.PDF, Power System Adequacy Assessment with Load Redistribution Attacks**](#) 633

Yingmeng Xiang; Zhilu Ding and Lingfeng Wang

[**ISGT2015-000346.PDF, Cyber-Physical Risk Modeling and Mitigation for the Smart Grid Using a Game-Theoretic Approach**](#) N/A

Aditya Ashok and Manimaran Govindarasu

Microgrid III

[**ISGT2015-000157.PDF, Single-Objective Approaches for Microgrid Scheduling in the Presence of Plug-In Vehicle Fleets and Datacenters**](#) 643

Shahab Khormali; Fabio Mottola and Angela Russo

[**ISGT2015-000173.PDF, Investigating the Impact of Varving the Number of Distributed Energy Resources on Controlling the Power Flow Within a Microgrid**](#) 648

Amir Fazeli; Mark Sumner; C. Mark Johnson and Edward Christopher

[ISGT2015-000200.PDF, Micro Grid Scheduling Policies, Forecasting Errors, and Cooperation Based on Production Correlation](#) N/A

Georgios Tsaousoglou; Emmanouel Varvarigos and Prodromos Makris

[ISGT2015-000248.PDF, .An Novel Droop Control Method for DC Microgrid Based on Fuzzy Sliding Mode Control](#) N/A

Mi yang

[ISGT2015-000329.PDF, Grid-Independent Cooperative Microgrid Networks with High Renewable Penetration](#) 663

Eman Hammad; Abdallah Farraj and Deepa Kundur

The Big Picture

[ISGT2015-000130.PDF, Defining the Value of the Grid](#) 668

Kenneth Bowes and Michael Beehler

[ISGT2015-000172.PDF, Model-Based Assessment for Balancing Privacy Requirements and Operational Capabilities in the Smart Grid](#) 673

Fabian Knirsch; Dominik Engel; Marc Frincu and Viktor Prasanna

[ISGT2015-000184.PDF, Electricity Theft Detection Using Smart Meter Data](#) 678

Sanujit Sahoo; Daniel Nikovski; Toru Muso and Kaoru Tsuru

[ISGT2015-000204.PDF, Efficient, Verifiable, Secure, and Privacy-Friendly Computations for the Smart Grid](#) 683

Fábio Borges; Florian Volk and Max Mühlhäuser

[ISGT2015-000305.PDF, Understanding Flattening Demand in Electrical Distribution Using a Clustering Approach](#) N/A

Brian Akperi and Peter Matthews

[ISGT2015-000043.PDF, Erkios: End-To-End Field-Based RAS Testing](#) 692

Luis Oleas Chávez; David Bakken; Anjan Bose and Patrick Panciatici