

2018 15th International Conference on the European Energy Market (EEM 2018)

**Lodz, Poland
27-29 June 2018**

Pages 1-568



**IEEE Catalog Number: CFP1852D-POD
ISBN: 978-1-5386-1489-1**

**Copyright © 2018 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 is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP1852D-POD
ISBN (Print-On-Demand):	978-1-5386-1489-1
ISBN (Online):	978-1-5386-1488-4
ISSN:	2165-4077

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

THE IMPACT OF QUALITY INVESTMENT IN THE ELECTRICITY MARKET BASED ON A SOCIOECONOMIC MARKET MODEL CONTRIBUTION.....	1
<i>L. G. Arango ; H. Arango ; B. D. Bonatto ; E. Deccache ; L. S. B. Maciel ; E. O. Pamplona</i>	
ANALYSIS OF THE TRANSIENT BEHAVIOR OF GROUNDING SYSTEMS WITH CONSIDERATION OF SOIL IONIZATION.....	6
<i>Idir Djamel ; Fouad H. Slaoui ; Semaan Georges</i>	
MULTI-MARKET PRICE FORECASTING IN HYDRO-THERMAL POWER SYSTEMS	11
<i>Arild Helseth ; Mari Haugen ; Stefan Jaehnert ; Birger Mo ; Hossein Farahmand ; Christian Naversen</i>	
FORECASTING THE SPREAD BETWEEN HUPX AND EEX DAM PRICES THE CASE OF HUNGARIAN AND GERMAN WHOLESALE ELECTRICITY PRICES	16
<i>Alfa Diallo ; Eniko Kácsor ; Milán Vancsa</i>	
ASSESSMENT OF DIRECT CURRENT LINKS INTRODUCTION IN THE TRANSMISSION SYSTEM.....	21
<i>Waldemar Niewiadomski ; Aleksandra Baczynska</i>	
THE IMPACT OF THE PHASE-SHIFTING TRANSFORMERS ON THE POWER FLOW IN THE TRANSMISSION GRID	26
<i>Aleksandra Baczynska ; Waldemar Niewiadomski</i>	
ENERGY STORAGE SYSTEMS FOR COMMITMENT AND DISPATCH OF CONVENTIONAL POWER PLANTS	31
<i>Dawid Chudy</i>	
SCHEDULING OF A PUMPED-STORAGE HYDRO IN THE DAY-AHEAD MARKET AND IN THE SECONDARY RESERVE MARKET	36
<i>Filipe Fernandes ; Jorge A. M. Sousa ; João Santana ; Joao Lagarto</i>	
MODELING AND QUANTIFYING THE IMPORTANCE OF SNOW STORAGE INFORMATION FOR THE NORDIC POWER SYSTEM	41
<i>Birger Mo ; Arild Helseth ; Geir Warland</i>	
QUANTIFYING FACTORS FOR PARTICIPATION IN LOCAL ELECTRICITY MARKETS	46
<i>Esther Mengelkamp ; Philipp Staudt ; Johannes Gärtner ; Christof Weinhardt ; Julian Huber</i>	
MARKET SCENARIOS FOR INTEGRATION OF DISTRIBUTION SYSTEM OPERATORS WITHIN THE SCHEDULING SYSTEM	51
<i>Bjoern Illing ; Steffi Naumann ; Stefan Klaiber ; Oliver Warweg</i>	
AN ANALYSIS OF THRESHOLD POLICIES FOR TRADING IN CONTINUOUS INTRADAY ELECTRICITY MARKETS	56
<i>Gilles Bertrand ; Anthony Papavasiliou</i>	
OVERVIEW OF THE REGULATION ON AGGREGATOR AGENTS IN EUROPE.....	61
<i>Mattia Barbero ; Lucia Igualada ; Cristina Corchero</i>	
OPTIMIZATION OF THE FLEXIBLE VIRTUAL POWER PLANT OPERATION IN MODERN POWER SYSTEM.....	66
<i>Adam Lesniak</i>	
MARKET POWER IN HYDRO-THERMAL SYSTEMS WITH MARGINAL COST BIDDING	71
<i>Markus Loschenbrand ; Magnus Korpas ; Marte Fodstad</i>	
A SMART MARKET APPROACH TO COORDINATE MARKET AND GRID OPERATIONS	76
<i>Steffi Naumann ; Oliver Warweg ; Stefan Klaiber ; Peter Bretschneider</i>	
AN ANALYSIS OF THE ENVIRONMENTAL KUZNETS CURVE (EKC) HYPOTHESIS IN PORTUGAL: SECTOR DATA AND INNOVATION EFFECTS	81
<i>Alexandre Hébil Ramos ; Mara Madaleno ; Celeste Amorim Varum</i>	
MARKET POWER INFLUENCE IN ELECTRIC ENERGY PRICES: AN ANALYSIS THROUGH EUROPE	87
<i>Liliana Monteiro ; Mara Madaleno</i>	
IMPROVING ELECTRICITY PRICE FORECASTING THROUGH DATA SEGMENTATION BASED ON ARTIFICIAL IMMUNE SYSTEMS	93
<i>J. Nuno Fidalgo ; Eduardo F. N. R. Da Rocha</i>	
BEHAVIOR OF THE IBERIAN ELECTRICITY MARKET PRICES IN 2016 CONSIDERING INCREASING VALUES OF FEED-IN GENERATION	98
<i>João Pedro Teixeira ; João Tomé Saraiva</i>	

EVALUATION OF THE IMPACT OF SHIFTING DEMAND FROM PEAK TO ADJACENT HOURS IN THE SOCIAL WELFARE FUNCTION OF THE IBERIAN ELECTRICITY MARKET, MIBEL	103
<i>Pedro Tiago Pinto ; João Tomé Saraiva</i>	
DEVELOPMENT OF THE POLISH POWER EXCHANGE AS A MANAGEMENT SYSTEM IN TERMS OF CONTROL THEORY AND SYSTEMS ENGINEERING	108
<i>Jerzy Tchórzewski ; Radoslaw Marlega</i>	
AN ELECTRICITY GENERATION EXPANSION MODEL WITH ICEV AND PEV INVESTMENTS	113
<i>Rosendo Castanon ; Fco. Alberto Campos Fernandez ; Salvador Domenech Martinez ; Jose Villar Collado</i>	
SYNTHETIZING REPRESENTATIVE PERIODS FOR CHRONOLOGICAL HOURLY ELECTRICITY GENERATION EXPANSION MODELS	118
<i>Salvador Doménech ; José Villar</i>	
A MULTI-MODEL APPROACH TO INVESTIGATE SECURITY OF SUPPLY IN THE GERMAN ELECTRICITY MARKET	123
<i>Dirk Hladik ; Christoph Fraunholz ; Pia Manz ; Matthias Kühnbach ; Robert Kunze</i>	
EFFICIENT MARKET HYPOTHESIS AND POLISH ELECTRICITY MARKET	128
<i>Izabela Filipiak ; Piotr Filipiak</i>	
ENERGY SECURITY IMPACTS OF DECREASING CHP CAPACITY IN FINLAND	133
<i>Kristo Helin ; Jaakko Jaäskeläinen ; Sanna Syri</i>	
LOCAL FORECASTING FOR PREDICTIVE SMART HOME/OBJECT CONTROL	138
<i>Alexander Arnoldt ; Thiago Koh Guerra</i>	
OPTIMISATION OF AN ENERGY SYSTEM IN FINLAND USING NSGA-II EVOLUTIONARY ALGORITHM	143
<i>Mikko Wahlroos ; Jaakko Jääskeläinen ; Janne Hirvonen</i>	
ECONOMIC JUSTIFICATION FOR EQUIPPING LV NETWORK SYSTEMS WITH ENERGY STORAGE UNITS TO ENHANCE POWER SUPPLY PARAMETERS	148
<i>Sylwester Adamek ; Robert Jedrychowski ; Pawel Pijarski ; Klara Sereja</i>	
SCARCITY INDICES FOR THE EUROPEAN ELECTRICITY MARKETS	153
<i>Ren Beune ; Alexander Dusolt</i>	
ENSURING GENERATION ADEQUACY IN FINLAND WITH SMART ENERGY POLICY - HOW TO SAVE FINNISH CHP PRODUCTION?	158
<i>Jaakko Jääskeläinen ; Kaisa Huhta ; Jenny Lehtomäki</i>	
ARE CONSUMPTION TARIFFS STILL UP-TO-DATE? AN OPERATIONALIZED ASSESSMENT OF GRID FEES	163
<i>Julian Huber ; Bent Richter ; Christof Weinhardt</i>	
ROLLING HORIZON MARKET CLEARING AND INCENTIVES TO BID CONSISTENTLY	168
<i>Hjalmar Pihl ; Magnus Brolin</i>	
INFLUENCE OF EUROPEAN MARKET FRAMEWORKS ON MARKET PARTICIPATION AND RISK MANAGEMENT OF VIRTUAL POWER PLANTS	173
<i>Nicolas Thie ; Lukas Kloibhofer</i>	
IMPACT OF ENERGY STORAGE ON LOAD BALANCING	178
<i>Wladyslaw Mielczarski</i>	
THE IMPACT OF THE POWER LINE CONDUCTORS TEMPERATURE ON THE OPTIMAL SOLUTION OF GENERATION DISTRIBUTION IN THE POWER SYSTEM	183
<i>Michal Wydra ; Piotr Kacejko ; Patryk Gastolek</i>	
HOUSEHOLD PRICE ELASTICITY OF DEMAND AS A TOOL FOR TARIFF SYSTEM DESIGN LEADING TO INCREASE OF ELECTRICITY USE FOR SPACE HEATING PURPOSES	188
<i>Jerzy Andruszkiewicz ; Józef Lorenc ; Artur Michalski</i>	
AN AGENT-BASED MODEL FOR SIMULATING SMART GRID INNOVATIONS	193
<i>Philippe Schädler ; Holger Wache ; Emanuela Merelli</i>	
THE USE OF MODERN METERING AND BILLING SYSTEMS TO INCREASE THE EFFICIENCY OF ELECTRICITY DISTRIBUTION IN THE DISTRIBUTION NETWORK	198
<i>Anna Gawlak ; Maria Sepek</i>	
AUTOMATIC METER INFRASTRUCTURE (AMI) AS A PART OF FLEXIBILITY MARKET	203
<i>Sirpa Repo ; Jouni Pylvanainen ; Markku Kauppinen ; Sami Repo ; Pertti Jarventausta</i>	
COST-OPTIMAL MARKET SHARE OF ELECTRIC MOBILITY WITHIN THE ENERGY SYSTEM IN A DECARBONISATION SCENARIO	208
<i>Diana Böttger ; Mareike Jentsch ; Tobias Trost ; Norman Gerhardt ; Michael Von Bonin ; Jonas Eschmann</i>	
A FIRST SHOT AT TIME-DEPENDENT CO₂INTENSITIES IN MULTI-MODAL ENERGY SYSTEMS	213
<i>Christopher Ripp ; Florian Steinke</i>	

JOINT CENTRALIZED AND DISTRIBUTED ELECTRICITY GENERATION EXPANSION IN A DECARBONIZED SCENARIO: THE SPANISH CASE	218
<i>Salvador Domenech Martinez ; Fco. Alberto Campos Fernandez ; Michel Rivier Abbad ; Jose Villar Collado</i>	
THE IMPACT OF DISTRIBUTION LOCATIONAL MARGINAL PRICES ON DISTRIBUTED ENERGY RESOURCES: AN AGGREGATED APPROACH	223
<i>C. Edmunds ; W.A. Bukhsh ; S. Galloway</i>	
COORDINATED CONGESTION MANAGEMENT ACROSS VOLTAGE LEVELS USING LOAD FLOW SENSITIVITIES	228
<i>Benjamin Müller ; Michael Salzinger ; Hendrik Lens ; Rainer Enzcnhöfer ; Florian Gutekunst</i>	
GENERATION ADEQUACY OF THE EUROPEAN ELECTRICITY SYSTEM	234
<i>Victoria Guerrero-Mestre ; Marta Poncela Blanco ; Javier Contreras</i>	
COST-BENEFIT ANALYSIS OF LI-ION BATTERIES IN A DISTRIBUTION NETWORK	239
<i>Lubova Petrichenko ; Zane Broka ; Antans Sauhats ; Deniss Bezrukovs</i>	
NET-PRESENT-VALUE ANALYSIS FOR BIDIRECTIONAL EV CHARGERS PROVIDING FREQUENCY CONTAINMENT RESERVE	244
<i>Olivier Borne ; Marc Petit ; Yannick Perez</i>	
COMPARISON OF SHORT-TERM LOAD FORECASTING PERFORMANCE BY NEURAL NETWORK AND AUTOREGRESSIVE BASED MODELS	250
<i>M. López ; S. Valero ; C. Sans ; C. Senabre ; A. Gabaldón</i>	
INCENTIVIZING THE ADOPTION OF LOCAL FLEXIBILITY OPTIONS: A QUANTITATIVE CASE STUDY	255
<i>Tim Janke ; Bastian Brindley ; Tobias Rodemann ; Florian Steinke</i>	
A (NOT SO) INDEPENDENT AGGREGATOR IN THE BALANCING MARKET THEORY, POLICY AND REALITY CHECK	260
<i>Ksenia Poplavskaya ; Laurens De Vries</i>	
ADVANTAGES, BENEFITS, AND EFFECTIVENESS RESULTING FROM THE APPLICATION OF THE DYNAMIC MANAGEMENT OF TRANSMISSION LINE CAPACITIES	266
<i>Piotr Kacejko Michal Wydra ; Wieslaw Nowak Waldemar Szypra</i>	
BALANCING RESERVES IN A POWER SYSTEM WITH HIGH WIND PENETRATION - EVIDENCE FROM PORTUGAL	271
<i>Pedro M.S. Frade ; J.P.S. Catalão ; Joao Pedro Pereira ; J.J.E. Santana</i>	
ESTIMATING THE COSTS OF OPERATING RESERVE PROVISION BY POUNDAGE HYDROELECTRIC POWER PLANTS	275
<i>Roman Petrichenko ; Karlis Baltputnis ; Dmitry Sobolevsky ; Antans Sauhats</i>	
A LINEAR MODEL FOR OPERATING MICROGRIDS WITH RENEWABLE RESOURCES, BATTERY DEGRADATION COSTS AND ELECTRIC VEHICLES	280
<i>Pablo Diaz-Cachinero ; Jose Ignacio Munoz-Hernandez ; Javier Contreras</i>	
TRANSITION TO CARBON NEUTRAL ENERGY SYSTEMS - IMPLICATIONS TO DISTRICT HEATING IN CITIES	285
<i>Aira Hast ; Sanna Syri ; Julia Welsch ; Pinar Korkmaz ; Olexandr Balyk</i>	
COMPARISON OF OPPORTUNITIES AND CHALLENGES IN DEMAND RESPONSE PILOTS IN FINLAND AND PORTUGAL	290
<i>Salla Annala ; Gonçalo Mendes ; Samuli Honkapuro ; Luisa Matos ; Lurian Pires Klein</i>	
MATURITY OF BLOCKCHAIN TECHNOLOGY IN LOCAL ELECTRICITY MARKETS	295
<i>Bent Richter ; Esther Mengelkamp ; Christof Weinhardt</i>	
THE ROLE OF ELECTRIC VEHICLES IN SUSTAINABLE ENERGY: APPLYING EXPERIENCE FROM OTHER COUNTRIES TO POLISH REALITY	301
<i>Karolina Bienias ; Anna Kowalska-Pyzalska</i>	
CROSS-BORDER TRANSMISSION LINE CONFIGURATION INFLUENCE ON THE ELECTRICAL POWER AND ENERGY BILLING PROCESS	307
<i>Krzysztof Dobrzynski ; Jacek Klucznik ; Zbigniew Lubosny ; Marcin Jaskolski ; Pawel Bucko</i>	
ELECTRICITY-BASED FUEL PRODUCTION: AN ASSESSMENT OF ITS IMPACT ON THE EUROPEAN POWER SYSTEM CONSIDERING FLEXIBILITY	312
<i>M. Borning ; N. Van Bracht ; A. Moser ; L. Doré ; M. Wolff ; G. Walther</i>	
CAPACITY EXPANSION PLANNING REVISITED: ASSESSING THE IMPACT OF ELECTRIC VEHICLES ON THE EUROPEAN POWER SYSTEM	317
<i>N. Van Bracht ; L. Skiba ; A. Moser</i>	
ROLE OF TRANSMISSION EXPANSION AND ENERGY STORAGE IN THE CONTEXT OF SCENARIOS WITH HIGH SHARES OF VARIABLE RENEWABLES	322
<i>Adamantios Marinakis ; C. Yaman Evrenosoglu ; Alexandre Oudalov</i>	

TECHNO-ECONOMIC OPTIMIZATION OF EV CHARGING INFRASTRUCTURE INCORPORATING CUSTOMER BEHAVIOR	327
<i>M. Pagani ; N. Chokani ; R.S. Abhari ; W. Korosec</i>	
HYBRIDISATION OF FUNDAMENTAL AND COMPOSITE ECONOMETRIC MODELLING FOR SHORT-TERM ELECTRICITY PRICE FORECASTING.....	332
<i>Rodrigo A. De Marcos ; Antonio Bello ; Javier Reneses</i>	
OPTIMISATION AND NEGOTIATION: TWO APPROACHES TO DEMAND RESPONSE ACTIONS PRICING ON ENERGY MARKETS	337
<i>Bozena Ewa Matusiak ; Witold Bartkiewicz</i>	
EVALUATING THE APPLICABILITY OF ELEVATORS IN FREQUENCY CONTAINMENT RESERVES	342
<i>Toni Tukia ; Semen Uimonen ; Matti Lehtonen</i>	
IMPACT OF CURRENT MARKET DEVELOPMENTS IN EUROPE ON DETERMINISTIC GRID FREQUENCY DEVIATIONS AND FREQUENCY RESTAURATION RESERVE DEMAND	347
<i>Tobias Weißbach ; Simon Remppis ; Hendrik Lens</i>	
ENERGY EFFICIENCY AND ITS DETERMINANTS: AN EMPIRICAL ANALYSIS	353
<i>Margarita Robaina ; Miguel Ferreira Dias</i>	
ECONOMIC IMPACT OF INVESTMENTS IN THE ELECTRICITY SECTOR - A HYBRID GENERAL EQUILIBRIUM AND TECHNOLOGICAL ANALYSIS	358
<i>Francisco Martinez Rubio ; Margarita Robaina ; Fco Alberto Campos ; Jose Villar</i>	
STANDALONE ELECTRICAL STORAGES AS PART OF THE NETWORK SYSTEM IN METROPOLITAN AREA IN FINLAND	363
<i>Elina Rebecka Rikkas</i>	
UTILIZING END-USER FLEXIBILITY FOR DEMAND MANAGEMENT UNDER CAPACITY SUBSCRIPTION TARIFFS	368
<i>Sigurd Bjarghov ; Gerard Doorman</i>	
THE POWER POTENTIAL PROJECT: TRIALLING THE PROCUREMENT OF REACTIVE POWER SERVICES FROM DISTRIBUTION-CONNECTED ASSETS.....	373
<i>Chris Collins ; Biljana Stojkovksa</i>	
MARKET-BASED BIDDING STRATEGY FOR VARIABLE RENEWABLE GENERATION IN THE MIBEL	377
<i>Ricardo Pastor ; Nuno Pinho Da Silva ; Joao Esteves ; Rui Pestana</i>	
INTEGRATED ELECTRICITY AND GAS MARKET MODELING - EFFECTS OF GAS DEMAND UNCERTAINTY	382
<i>Igor Riepin ; Thomas Möbius ; Felix Müsgens</i>	
A MONTE CARLO APPROACH TO REPRESENT UNCERTAINTY IN THE EUROPEAN ELECTRICITY MARKET	387
<i>Alberto Orgaz ; Antonio Bello ; Javier Reneses</i>	
STATISTICAL LONG-TERM WIND SIMULATION IN THE IBERIAN AND FRENCH ELECTRICITY SYSTEM.....	393
<i>Leopoldo Cabrera ; Antonio Bello ; Javier Reneses</i>	
THE IMPACTS OF CHANGING PUBLIC POLICY FROM PRICE-DRIVEN TO QUANTITY- DRIVEN REGULATION FOR GERMAN PV INDUSTRY	398
<i>Elena Shkuratova</i>	
IMPACT ASSESSMENT OF POWER-TO-X OPTIONS IN THE GERMAN RESIDENTIAL SECTOR.....	403
<i>Michael Haendel ; Rainer Eisiand</i>	
ELECTRIFICATION AND COAL PHASE-OUT IN GERMANY: A SCENARIO ANALYSIS	408
<i>Felix Boing ; Alexander Murmann ; Andrej Guminski</i>	
THE EFFECT OF DEMAND RESPONSE ON PERCEIVED THERMAL COMFORT IN A DISTRICT HEATED OFFICE BUILDING	414
<i>Sonja Salo ; Juha Jokisalo ; Sanna Syri ; Risto Kosonen</i>	
POOLED FREQUENCY RESTORATION RESERVE PROVISION BY WIND FARMS AND CONTROLLABLE ENERGY UNITS.....	419
<i>Alexander Dreher ; Dominik Jost ; Scott Otterson ; Patrick Hochloff</i>	
EVALUATING FLEXIBILITY OF BUSINESS MODELS FOR DISTRIBUTED ENERGY RESOURCE AGGREGATORS.....	425
<i>Mateo Beus ; Ivan Pavic ; Hrvoje Pandzic ; Tomislav Capuder ; Ivona Stritof ; Ivan Androcec</i>	
FLOW-BASED ANALYSIS OF STORAGE USAGE IN A LOW-CARBON EUROPEAN ELECTRICITY SCENARIO	430
<i>Bo Tranberg ; Mirko Schäfer ; Tom Brown ; Jonas Hörsch ; Martin Greiner</i>	

FAST FREQUENCY CONTROL SERVICES IN EUROPE	435
<i>Daniel Fernandez-Muñoz ; Ignacio Guisandez ; Juan I. Perez-Diaz ; Manuel Chazarra ; Alvaro Femandez-Espina ; Frank Burke</i>	
IMPACT OF LARGE SCALE BATTERY ENERGY STORAGE ON THE 2030 CENTRAL EUROPEAN TRANSMISSION GRID	440
<i>Christiaan J. Joubert ; Ndaona Chokani ; Reza S. Abhari</i>	
AN ADAPTIVE TABU SEARCH ALGORITHM FOR MARKET CLEARING PROBLEM IN TURKISH DAY-AHEAD MARKET	445
<i>Nermin Elif Kurt ; H. Bahadır Sahin ; Kürsad Derinkuyu</i>	
A GENETIC ALGORITHM TO SOLVE DAY-AHEAD ENERGY MARKET CLEARING PROBLEM UNDER NETWORK CONSTRAINTS	451
<i>Nuri Sensoy ; Gokhan Ceyhan</i>	
ELECTRICITY MARKET DESIGN AND OPERATION IN GUANGDONG POWER	457
<i>Xuan Zhang ; Wentao Liu ; Yuguo Chen ; Yang Bai ; Jialong Li ; Jin Zhong</i>	
COMPETITION EFFECTS OF SIMULTANEOUS APPLICATION OF FLEXIBILITY OPTIONS WITHIN AN ENERGY COMMUNITY	462
<i>Fabian Scheller ; Simon Johanning ; Sören Reichardt ; David G. Reichelt ; Thomas Bruckner</i>	
VERTICAL TRANSPORTATION DEMAND RESPONSE: COST OF LOST CUSTOMER HOURS	467
<i>Semen Uimonen ; Toni Tukia ; Matti Lehtonen</i>	
IS OFFSHORE ALREADY COMPETITIVE? ANALYZING GERMAN OFFSHORE WIND AUCTIONS	472
<i>Felix Müsgens ; Iegor Riepin</i>	
IMPACT OF THE UTILIZATION OF HEAT PUMPS FOR BUILDINGS HEATING IN THE ITALIAN POWER MARKET	478
<i>Sara Abd Alla ; Vincenzo Bianco ; Annalisa Marchitto ; Federico Scarpa ; Luca A. Tagliafico</i>	
OPTIMIZED OPERATIONAL MANAGEMENT OF AN EV SHARING COMMUNITY INTEGRATED WITH BATTERY ENERGY STORAGE AND PV GENERATION	483
<i>Meng Song ; Mikael Amelin ; Xue Wang ; Ashad Saleem</i>	
ASSESSMENT THE VALUE OF SUBSIDIZING LARGE CHP PLANTS	488
<i>Karlis Baltputnis ; Zane Broka ; Antans Sauhats</i>	
ANALYSIS OF BIDDING STRATEGIES IN THE GERMAN CONTROL RESERVE MARKET	493
<i>Emil Kraft ; Dogan Keles ; Wolf Fichtner</i>	
FLEXIBLE DEMAND FOR HIGHER INTEGRATION OF RENEWABLES INTO THE EUROPEAN POWER SYSTEM	499
<i>K. Syranidis ; P. Markowitz ; J. Linssen ; M. Robinius ; D. Stolten</i>	
TRUNCATED GAUSSIAN HIDDEN MARKOV MODELS AND WIND SPEED SPATIO-TEMPORAL SERIES	505
<i>Carlo Lucheroni ; John Boland ; Costantino Ragno</i>	
WHAT DO MODELS TELL US ABOUT CAPACITY REMUNERATION MECHANISMS?	510
<i>Charlotte Scoufflaire</i>	
EMISSION ASSESSMENT OF ELECTRICITY: MIX VS. MARGINAL POWER PLANT METHOD	516
<i>Anika Regett ; Felix Baing ; Joehen Conrad</i>	
DELIVERY OF ANCILLARY SERVICES IN DISTRIBUTION POWER SYSTEMS	521
<i>Pawel Bucko ; Marcin Jaskólski ; Zbigniew Lubosny ; Jacek Klucznik ; Krzysztof Dobrzynski</i>	
USE CASE DESCRIPTION OF REAL-TIME CONTROL OF MICROGRID FLEXIBILITY	526
<i>Aleksei Mashlakov ; Ville Tikka ; Samuli Honkapuro ; Jarmo Partanen ; Sami Repo ; Anna Kulmala ; Rinat Abdurafikov ; Antti Keski-Koukkari ; Matti Aro ; Pertti Järventausta</i>	
IMPROVEMENT OF DC MICROGRID VOLTAGE REGULATION BASED ON BIDIRECTIONAL INTELLIGENT CHARGING SYSTEMS	531
<i>Pedro Santos ; Pedro Fonte ; Ricardo Luis</i>	
DEMAND SIDE MANAGEMENT AND THE PARTICIPATION IN CONSECUTIVE ENERGY MARKETS - A MULTISTAGE STOCHASTIC OPTIMIZATION APPROACH	537
<i>Markus Bohlayer ; Markus Fleschutz ; Marco Braun ; Gregor Zöttl</i>	
MICROGRIDS AS PART OF ELECTRICAL ENERGY SYSTEM - PRICING SCHEME FOR NETWORK TARIFF OF DSO	542
<i>Kimmo Lummi ; Antti Rautiainen ; Lasse Peltonen ; Sami Repo ; Pertti Jarventausta ; Joni Rintala</i>	
MARKET EFFECTS OF INDUSTRIAL DEMAND RESPONSE AND FLEXIBILITY POTENTIAL FROM WASTEWATER TREATMENT FACILITIES	547
<i>Dana Kirchem ; Muireann Lynch ; Valentin Bertsch ; Eoin Casey</i>	
MARKET DESIGN SUPPORTING THE WEB-OF-CELLS CONTROL ARCHITECTURE	553
<i>Irina Oleinikova ; Viktorija Bobinaite ; Artjoms Obushevs</i>	

THE EVOLUTION OF THE ITALIAN POWER SYSTEM TO SUPPORT THE NATIONAL GOAL OF 55% OF RENEWABLES ON ELECTRICITY CONSUMPTION.....	558
<i>Fabio Lanati ; Maria Gaeta</i>	
COMPARISON OF EUROPEAN POWER BALANCING MARKETS - BARRIERS TO INTEGRATION	563
<i>Felix Röben</i>	
GERMAN WIND AUCTIONS MODELED AS A PARTICIPATION GAME	569
<i>Silvester Van Koten</i>	
OPTIMAL NON-ZERO PRICE BIDS FOR EVS IN ENERGY AND RESERVES MARKETS USING STOCHASTIC OPTIMIZATION	574
<i>Mathijs De Weerd ; German Morales-Espana ; Koos Van Der Linden</i>	
EFFECTS OF ELECTRIC VEHICLES AND HEAT PUMPS ON LONG-TERM ELECTRICITY CONSUMPTION SCENARIOS FOR RURAL AREAS IN THE NORDIC ENVIRONMENT	579
<i>Juha Haakana ; Jouni Haapaniemi ; Jukka Lassila ; Jarmo Partanen ; Harri Niska ; Antti Rautiainen</i>	
INTEGRATION OF SMALL-SCALE BATTERIES INTO FUTURE ELECTRICITY MARKETS	584
<i>Benjamin Stahl ; Anna-Lena Klingler ; Marian Klobasa ; Pia Manz ; Martin Pudlik</i>	
CHANGING TO POWER-BASED GRID PRICING - AN INCENTIVE FOR GRID DEFECTIONS IN NORDIC CONDITIONS?	589
<i>Jouni Haapaniemi ; Juha Haakana ; Nadezda Belonogova ; Jukka Lassila ; Jarmo Partanen</i>	
BALANCING MARKET INTEGRATION - MODEL-BASED ANALYSIS OF POTENTIAL CROSS-BORDER RESERVE EXCHANGE BETWEEN NORWAY AND GERMANY	594
<i>Julia Bellenbaum ; Christoph Weber ; Gerard Doorman ; Hossein Farahmand</i>	
SIMULATION OF THE DYNAMICS OF RENEWABLE ENERGY SOURCES WITH ENERGY STORAGE SYSTEMS	599
<i>Robert Malkowski ; Pawel Bucko ; Marcin Jaskólski ; Wojciech Pawlicki ; Alicja Stoltmann</i>	
IMPACT OF DISTRIBUTION TARIFF DESIGN ON THE PROFITABILITY OF AGGREGATORS OF DISTRIBUTED ENERGY STORAGE SYSTEMS	604
<i>Niels Govaerts ; Kenneth Bruninx ; Erik Delarue</i>	
THE PORTFOLIO PERSPECTIVE IN ELECTRICITY GENERATION AND MARKET OPERATIONS.....	609
<i>Stein-Erik Fleten ; Kjetil T. Midthun ; Thor Bjorkvoll ; Adrian Werner ; Marte Fodstad</i>	
NORTH SEA OFFSHORE GRID - EFFECTS OF INTEGRATION TOWARDS 2050	614
<i>Juan Gca-Berrnudez ; Lise-Lotte Pade ; Athanasios Papakonstantinou ; Matti Juhani Koivisto</i>	
ANALYSIS OF SPINNING RESERVES IN SYSTEMS WITH VARIABLE POWER SOURCES	619
<i>P. M. Fonte ; Claudio Monteiro ; Fernando Maciel Barbosa</i>	
DO VARIABLE RENEWABLE ENERGIES ENDANGER THE POWER SYSTEM ? - AN APPROACH TO MEASURE FLEXIBILITY	624
<i>Barbara Breitschopf ; Alisa Baumann</i>	
A THOROUGH COMPARISON AMONG VARIOUS MATHEMATICAL APPROACHES TO COMPUTE PUN IN ITALY.....	629
<i>Le Hong Lam ; Valentin Ilea ; Cristian Bovo</i>	
POOL-BASED MARKET WITH BIDS FROM ELECTRIC VEHICLES IN THE PRESENCE OF UNCERTAIN RENEWABLE GENERATION	634
<i>Izabela Zoltowska ; Jeremy Lin</i>	
GERMAN INTRADAY ELECTRICITY MARKET ANALYSIS AND MODELING BASED ON THE LIMIT ORDER BOOK	639
<i>Henry Martin ; Scott Otterson</i>	
THE USE OF MULTICRITERIA COMPARATIVE ANALYSIS TO THE SELECTION OF THE STANDALONE HYBRID POWER GENERATION SYSTEM BASED ON RENEWABLE ENERGY SOURCES	645
<i>Ceran Bartosz ; Kazmierczak Lukasz</i>	
WIND TECHNOLOGY INNOVATION IN THE US	650
<i>Dali T. Laxton</i>	
A STOCHASTIC METHODOLOGY TO DETERMINE REINFORCEMENT COST OF POWER DISTRIBUTION GRID FOR INTEGRATING INCREASING SHARE OF RENEWABLE ENERGIES AND ELECTRIC VEHICLES	656
<i>Trung Vu</i>	
FINANCIAL TRANSMISSION RIGHTS: A NEW PROPOSAL.....	661
<i>Sambuddha Chakrabarti ; Mohammad Reza Hesamzadeh</i>	
THE INSTALLATIONS AND SYSTEMS IN INTELLIGENT BUILDINGS AS AN ELEMENT OF SMART CITIES CONCEPT	666
<i>Mirosław Parol ; Magdalena Stepaniuk</i>	

ASYMMETRIC IMPACT OF ECONOMIC GROWTH ON CO2EMISSIONS: EVIDENCE FROM THE EU COUNTRIES	671
<i>Mariola Pilatowska ; Andrzej Geise ; Aneta Wlodarczyk</i>	
BI-LEVEL ELECTRICITY MARKET DESIGN WITH BOUNDARY EQUIVALENCE OF INTERIOR SECURITY CONSTRAINTS	676
<i>Zhenfei Tan ; Haiwang Zhong ; Qing Xia ; Junfeng Yang</i>	
THE RESERVE SHARING MECHANISM AMONG INTERCONNECTED POWER GRIDS BASED ON BLOCK CHAIN	681
<i>Ziming Mal ; Haiwang Zhong ; Jianxiao Wang ; Ershun Du ; Qing Xia</i>	
MODELING LARGE ELECTRIC VEHICLE FLEETS IN POWER SYSTEM SIMULATIONS	686
<i>Levin Skiba ; Albert Moser</i>	
VEHICLE- TO- EVERYTHING (V2X): BENEFITS AND BARRIERS	691
<i>Cristina Corchero ; Manel Sanmarti</i>	
INFORMATION DISCLOSURE RULES IN THE EUROPEAN ELECTRICITY MARKET: AN OVERVIEW	695
<i>Ewa Lazarczyk ; Chloe Le Coq</i>	
CHANGING DYNAMICS IN EUROPEAN NATURAL GAS PRICES: DOES THE OIL PRICE STILL HOLD SWAY - AN ARDL APPROACH	699
<i>Matthew Schmidt</i>	
PHASE SHIFTING TRANSFORMER IN FLOW-BASED YEARLY NETWORK ANALYSIS FOR EUROPEAN MARKET ENVISION	705
<i>A. Allegretti ; M. Dicorato ; G. Forte ; M. Trovato ; B. Aluisio ; C. Gadaleta ; C. Vergine</i>	
HOW TO PROVIDE DISPATCHING SERVICES IN A SMART COMMUNITY MICROGRID TO REDUCE IMBALANCE CHARGES	710
<i>D. Menniti ; A. Pinnarelli ; N. Sorrentino ; P. Vizza ; G. Brusco ; G. Barone</i>	
COMBINING INVESTMENT, DISPATCH, AND SECURITY MODELS - AN ASSESSMENT OF FUTURE ELECTRICITY MARKET OPTIONS FOR SWITZERLAND	715
<i>Jared B. Garrison ; Turhan Demiray ; Jan Abrell ; Jonas Savelsberg ; Hannes Weigt ; Christian Schaffner</i>	
ADDRESSING ADEQUACY CONCERNS WITH CONTRACTS: REVIEW OF PAST, PRESENT AND POSSIBLE FUTURE	721
<i>Jonas K. Sekamane</i>	
INCORPORATING DEMAND FLEXIBILITY IN STRATEGIC GENERATION INVESTMENT PLANNING	727
<i>Temitayo Oderinwale ; Dimitrios Papadaskalopoulos ; Yujian Ye ; Goran Strbac</i>	
ECONOMIC FEASIBILITY OF FLOW BATTERIES IN GRID-SCALE APPLICATIONS	732
<i>Dmitry Buisikh ; Behnam Zakeri ; Sanna Syri ; Pertti Kauranen</i>	
COMPARISON OF INNOVATION POLICIES FOR ELECTRIC VEHICLE BUSINESS ECOSYSTEMS	737
<i>Jussi Valta ; Saku Mäkinen ; Kirsi Kottlainen ; Antti Rautiainen ; Pertti Järventausta</i>	
FAST FREQUENCY RESPONSE WITH BESS: A COMPARATIVE ANALYSIS OF GERMANY, GREAT BRITAIN AND SWEDEN	742
<i>Raphael Hollinger ; Agustin Motte Cortes ; Thomas Erge</i>	
COMBINED GENERATION AND TRANSMISSION CAPACITY MARKET MODEL FOR DISPERSED SYSTEMS	748
<i>Mikhail Yu. Vasilyev</i>	
AN ECONOMETRIC MODEL OF THE REGULATING POWER PRICE FOR INTERCONNECTED POWER SYSTEMS: THE CASE OF THE NORD POOL MARKET	752
<i>Almudena Valenciano ; Mokhtar Bozorg ; Fabrizio Sossan ; Mario Paolone</i>	
AUCTION DESIGN TO USE FLEXIBILITY POTENTIALS IN THE ENERGY - INTENSIVE INDUSTRY	757
<i>Nicole Ludwig ; Ralf Mikut ; Veit Hagenmeyer</i>	
COMBINING MACHINE LEARNING AND MULTI CRITERIA DECISION ANALYSIS MODELING REGULATORY, ECONOMIC AND SOCIAL INFLUENCES ON WIND TURBINE ALLOCATION	762
<i>Lara Lück ; Albert Moser</i>	
SOUTH EAST EUROPE ELECTRICITY ROADMAP (SEERMAP)	767
<i>L. Szabó ; A. Mezosi ; Zs. Pató ; E. Kacsor ; A. Kelemen ; G. Resch ; L. Liebmann</i>	
THE IMPACT OF NETWORK TARIFFS ON PV INVESTMENT DECISIONS BY CONSUMERS	772
<i>Niklas Vespermann ; Matthias Huber ; Simon Paulus ; Michael Metzger ; Thomas Hamacher</i>	
LIBERALIZED MARKETS FOR POWER TRANSMISSION CAPACITY	777
<i>Philipp Staudt ; Johannes Gartner ; Bent Richter ; Christof Weinhardt</i>	

A HYBRID MODEL BASED ON SYMBOLIC REGRESSION AND NEURAL NETWORKS FOR ELECTRICITY LOAD FORECASTING	782
<i>Ilias Dimoukkas ; Lars Herre ; Dina Khastieva ; Elis Nycander ; Mikael Amelin ; Peyman Mazidi</i>	
REANALYSING PRICE ASYMMETRIES IN THE NORDIC INTRADAY MARKET	787
<i>Jonas K. Sekamane</i>	
POTENTIAL IMPACT OF BLOCKCHAIN SOLUTIONS ON ENERGY MARKETS	792
<i>Michael Hinterstocker ; Christa Dufter ; Serafin Von Roon ; Alexander Bogensperger ; Andreas Zeiselmair</i>	
OPTIMAL OFFERING STRATEGY OF AN EV AGGREGATOR IN THE FREQUENCY-CONTROLLED NORMAL OPERATION RESERVE MARKET	797
<i>Tiago Soares ; Tiago Sousa ; Peter Bach Andersen ; Pierre Pinson</i>	
A MODEL BASED MARKET POWER ANALYSIS OF THE GERMAN MARKET FOR FREQUENCY CONTAINMENT RESERVE	803
<i>Samir Jeddi ; Michael Zipf</i>	
IMPACT OF ESCALATING EMISSION REQUIREMENTS ON THE OPERATION OF HEATING SYSTEMS IN POLAND	809
<i>Daria Zlotecka ; Krzysztof Sroka ; Agnieszka Mackowiak</i>	
FORECASTING ENERGY COMMODITIES PRICES WITH BAYESIAN MODEL COMBINATION SCHEMES	814
<i>Krzysztof Drachal</i>	
MANUAL FREQUENCY RESTORATION RESERVE IN SPAIN: ANALYSIS AND FORECASTING	819
<i>Manuel Chazarra ; Juan I. Perez-Diaz ; Rodrigo E. Portillo ; Araceli Hernandez-Bayo</i>	
A STATISTICAL APPROACH TO GENERATION SHIFT KEYS	826
<i>David Schönheit ; Roman Sikora</i>	
MAXIMAL DAILY SOCIAL WELFARE THROUGH DEMAND SIDE MANAGEMENT IN THE DAY-AHEAD ELECTRICITY MARKET	831
<i>Agustin A. Sanchez De La Nieta ; Madeleine Gibescu</i>	
AN ENHANCED CALCULATION METHOD OF GENERATION SHIFT KEYS IN FLOW BASED MARKET COUPLING	836
<i>Marcell Sebestyén ; Dániel Divenyi ; Péter Sorés</i>	
PARTICIPATION OF A COMBINED WIND AND STORAGE UNIT IN THE DAY-AHEAD AND LOCAL BALANCING MARKETS	841
<i>Mana Farrokhsereht ; Nikolaos G. Paterakis ; Madeleine Gibescu ; J. G. Slootweg</i>	
A SURVEY ON THE PARTICIPATION OF DISTRIBUTED ENERGY RESOURCES IN BALANCING MARKETS	846
<i>Mana Farrokhsereht ; Nikolaos G. Paterakis ; Madeleine Gibescu ; Yaser Tohidi ; J. G. Slootweg</i>	
NEW DEVELOPMENTS IN ECONOMIC REGULATION. LESSONS FOR THE POLISH DISTRICT-HEATING SECTOR	851
<i>Andrzej T. Szablewski</i>	
VARIABLE TIME RESOLUTION IN LP ELECTRICITY MARKET AND INVESTMENT MODELS	856
<i>Georgios Savvidis ; Kai Hufendiek</i>	
INVESTIGATIONS ON A FAIR TSO- TSO SETTLEMENT FOR THE IMBALANCE NETTING PROCESS IN EUROPEAN POWER SYSTEM	861
<i>Iason Avramiotis-Falireas ; Stavroula Margelou ; Marek Zima</i>	
CONTROL ARCHITECTURE REQUIREMENTS OF MULTITASKING BATTERY RESOURCE OPERATION	867
<i>Ville Tikka ; Nadezda Belonogova ; Andrey Lana ; Samuli Honkapuro ; Jukka Lassila ; Jarmo Partanen</i>	
THE PROFITABILITY OF ENERGY STORAGE IN EUROPEAN ELECTRICITY MARKETS	872
<i>Petr Spodniak ; Valentin Bertsch ; Mel Devine</i>	
METHODOLOGY TO DEFINE A BESS OPERATING STRATEGY FOR THE END-CUSTOMER IN THE CHANGING BUSINESS ENVIRONMENT	877
<i>Nadezda Belonogova ; Ville Tikka ; Jouni Haapaniemi ; Juha Haakana ; Samuli Honkapuro ; Jarmo Partanen ; Pirjo Heine ; Atte Pihkala ; Hannu-Pekka Hellman ; Markku Hvarinen</i>	
IMPACT OF LONGER STOCHASTIC FORECAST HORIZON ON THE OPERATIONAL COST OF A POWER SYSTEM	883
<i>Jari J. Miettinen ; Jussi Ikäheimo ; Topi Rasku ; Hannele Holttinen ; Juha Kiviluoma</i>	
THE METHOD OF DETECTING ILLEGAL ELECTRICITY CONSUMPTION USING THE AMI SYSTEM	888
<i>Grzegorz Dudek ; Anna Gawlak ; Mirosław Kornatka ; Jerzy Szkutnik</i>	

NODAL PRICING APPLIED TO IMBALANCE SETTLEMENT: ISSUES FOR IMPLEMENTATION IN ZONAL MARKETS.....	893
<i>Alessandro Zani ; Stefano Rossi</i>	
RES INVESTOR'S STRATEGIES IN THE AUCTION SYSTEM	898
<i>Janusz Sowinski</i>	
AN EXACT MILP MODEL FOR THE CLEARING OF A ZONAL ELECTRICITY MARKET WITH UNIFORM PURCHASE PRICE: RESULTS AND COMPARISON WITH EXISTING APPROACHES.....	903
<i>Dario Siface ; Paolo Pisciella ; Federica Davò ; Maria Teresa Vespucci</i>	
ELECTRICITY MARKET FOR DIRECT CURRENT DISTRIBUTION SYSTEMS: EXPLORING THE DESIGN SPACE	908
<i>Longjian Piao ; Laurens De Vries ; Mathijs De Weerd ; Neil Yorke-Smith</i>	
ON A MARKET DESIGN OF EMERGENCY DSR IN POLAND - VALUATION AND OPTIMAL ACQUISITION OF SERVICES.....	913
<i>Michal Klos ; Marcin Jakubek ; Mariusz Krupa</i>	
ENERGY PROSUMERS' ROLE IN ACCELERATING SUSTAINABILITY - AN EMPIRICAL STUDY IN FIVE EUROPEAN COUNTRIES	918
<i>Kirsi Kotilainen</i>	
OPTIMIZATION OF DISTRIBUTION SYSTEMS BY USING RES ALLOCATION AND GRID DEVELOPMENT	923
<i>Mateusz Andrychowicz</i>	
DAILY MARGINAL CO2EMISSIONS REDUCTIONS FROM WIND AND SOLAR GENERATION	928
<i>Malte Jansen ; Iain Staffell ; Richard Green</i>	
IMPACT OF FLOW-BASED MARKET COUPLING ON GENERATOR DISPATCH IN CEE REGION.....	933
<i>Rafael Finck ; Armin Ardone ; Wolf Fichtner</i>	
COMMUNITY MICROGRID SYSTEMS: ECONOMIC RESILIENCE AND CHALLENGES AHEAD.....	938
<i>Goncalo Mendes ; Samuli Honkapuro ; Chris Marnay ; Christos Ioakimidis ; Paulo Ferrão</i>	
ANALYSIS OF LARGE SCALE STORAGE IMPACT ON DISTRIBUTION NETWORK.....	943
<i>Jernej Zupancic ; Edin Lakic ; Tomi Medved ; Andrej F. Gubina</i>	
SENSITIVITY ANALYSIS OF THE STORAGE SYSTEM SIZING FOR SOLAR PLANTS IN ENERGY AND RESERVE MARKETS.....	948
<i>A. González-Garrido ; A. Saez-De-Ibarra ; A. Milo ; H. Gaztañaga ; P. Eguia</i>	
INVESTIGATION OF THE ROLE OF AN AGGREGATOR OPERATING IN THE EUROPEAN SPOT AND BALANCING MARKETS; THE CASE OF AN ISLAND.....	953
<i>Vasileios Machamint ; Konstantinos Oureilidis ; Venizelos Efthymiou ; George E. Georghiou</i>	
OPTIMAL SCHEDULING OF DISTRIBUTED GENERATION AND FLEXIBLE STORAGE IN SMART BUILDINGS	958
<i>Damir Jakus ; Josip Vasilj ; Josip Bošnjak ; Petar Sarajcev ; Stipe Vodopija</i>	
MAXIMIZATION OF EXPECTED WIND POWER PLANT PROFIT THROUGH OPTIMAL OFFERS ON THE DAY-AHEAD MARKET	963
<i>Damir Jakus ; Josip Vasilj ; Petar Sarajcev ; Joško Novakovic</i>	
ENHANCING N -1 SECURITY VIA BUILDING THERMOSTATIC LOAD CONTROL STRATEGY	968
<i>Xin Jia ; Haiwang Zhong ; Qing Xia ; Chongqing Kang ; Molin Huo ; Xingyang Zhu</i>	
SELF-CONSUMPTION POTENTIALS OF EXISTING PV SYSTEMS IN GERMAN HOUSEHOLDS	973
<i>Daniel Fett ; Matthias Neu ; Dogan Keles ; Wolf Fichtner</i>	
METHODOLOGY OF CALCULATING ELECTRIC ENERGY LOSSES IN DISTRIBUTION NETWORKS FOR THE NEEDS OF ASSESSMENT OF INVESTMENT NEEDS AND EFFECTIVENESS OF OPERATION OF DISTRIBUTION COMPANIES	978
<i>Barbara Kaszowska ; Andrzej Wloczyk</i>	
VIABILITY ANALYSIS OF A DECENTRALIZED ENERGY MARKET BASED ON BLOCKCHAIN	983
<i>Magda Foti ; Dimitrios Greasidis ; Manolis Vavalis</i>	
ESTIMATING ENERGY REDUCTION AMOUNT IN THE EVENT OF DEMAND RESPONSE ACTIVATION: BASELINE MODEL COMPARISON FOR THE BALTIC STATES.....	988
<i>Liga Sadovica ; Valentins Lavrinovics ; Antans -Saulus Sauhats ; Gatis Junghans ; Karin Maria Lehtmet</i>	
EFFICIENCY ANALYSIS OF THE BALTIC BALANCING MARKET.....	993
<i>Kristine Marcina ; Antans Sauhats ; Valentins Lavrinovics ; Gatis Junghans</i>	

BENEFITS OF ELECTRICITY INDUSTRY SWITCHING FROM FIXED TO SPOT-LINKED END-USER PRICES	999
<i>Aigars Silis ; Valentins Lavrinovics ; Gatis Junghans ; Antans Sauhats</i>	
ECONOMIC IMPACTS OF POWER-BASED TARIFFS ON PEER-TO-PEER ELECTRICITY EXCHANGE IN COMMUNITY MICROGRIDS	1004
<i>Arun Narayanan ; Jouni Haapaniemi ; Tero Kaipia ; Jarmo Partanen</i>	
INTRODUCING BLOCK ORDERS IN THE ITALIAN DAY-AHEAD ELECTRICITY MARKET	1009
<i>Iacopo Savelli ; Antonio Giannitrapani ; Simone Paoletti ; Antonio Vicino ; Bertrand Cornélusse</i>	
INTERACTIONS BETWEEN DEMAND RESPONSE AND NETWORK EXPANSION PLANNING: A QUANTITATIVE ANALYSIS	1015
<i>Desta Z. Fitiwi ; Valentin Bertsch</i>	
HOW TO ACHIEVE EFFECTIVE MARKET SURVEILLANCE FOR POWER TRANSFORMERS WITH THE INTAS PROJECT	1021
<i>Angelo Baggini ; Ingrid Weiss ; Nerea Ruiz Fuente ; Tomas Jezdinsky ; Franco Bua</i>	
COMPARATIVE STUDY ON FLOW-BASED AND NTC-BASED CAPACITY AUCTIONS	1026
<i>Bence Sító ; Péter Márk Sorés ; Ádám Sleisz ; Dániel Divényi</i>	
THE ITALIAN CAPACITY MARKET: AN ATTRACTIVE DESIGN FOR MARKET PLAYERS?	1031
<i>Giorgio Perico ; Claudia Checchi ; Virginia Canazza</i>	
TOWARDS ZERO EMISSION NEIGHBOURHOODS: IMPLICATIONS FOR THE POWER SYSTEM	1036
<i>S. Backe ; P. Crespo Del Granado ; A. Tomsgard ; D. Pinel ; M. Korpast ; K. B. Lindberg</i>	
TOWARDS OPTIMAL ACTIVATION OF BALANCING ENERGY TO MINIMIZE REGULATION FROM NEIGHBORING CONTROL AREAS	1042
<i>Zane Broka ; Karlis Balputnis ; Antans Sauhats ; Gatis Junghans ; Liga Sadovica ; Valentins Lavrinovics</i>	
A REVIEW ON COORDINATION SCHEMES BETWEEN LOCAL AND CENTRAL ELECTRICITY MARKETS	1047
<i>Yaser Tohidi ; Mana Farrokhsereht ; Madeleine Gibescu</i>	
A QUANTITATIVE EVALUATION OF CAPACITY REMUNERATION MECHANISMS IN EUROPE	1052
<i>William Zappa ; Teun Mulder ; Martin Junginger ; Machteld Van Den Broek</i>	
IMPACT OF AN ENLARGEMENT OF THE FLOW BASED REGION IN CONTINENTAL EUROPE	1058
<i>I. Marjanovic ; D. Vom Stein ; N. Van Bracht ; A. Moser</i>	
LONG-TERM TRANSMISSION EXPANSION PLANNING TOWARDS FUTURE EUROPEAN NETWORK DEVELOPMENT: ANALYSES ON HVDC CORRIDORS	1063
<i>A. L'abbate ; F. Careri ; R. Calisti ; S. Rossi ; A. Zani</i>	
THE IMPACT OF ELECTRIFICATION ON THE GAS SECTOR	1068
<i>Timo Kern ; Katharina Buchwitz ; Andrej Guminski ; Serafin Von Roon</i>	
INCENTIVE DESIGN, SIZING AND GRID INTEGRATION OF RESIDENTIAL PV SYSTEMS WITH HEAT PUMPS AND BATTERY STORAGE SYSTEMS	1073
<i>Jan Von Appen</i>	
IS THE NEW PREMIUM TO RENEWABLES BALANCED WITH THE MERIT-ORDER EFFECT IN SPAIN?	1078
<i>Juan M. Roldan-Fernandez ; Manuel Burgos-Payan ; Jesus M. Riquelme-Santos ; Alicia Troncoso Lora</i>	
ANALYSIS OF SMART METER DATA FOR ELECTRICITY CONSUMERS	1083
<i>Grzegorz Dudek ; Anna Gawlak ; Mirosław Kornatka ; Jerzy Szkutnik</i>	
A GAME-THEORETIC MODELING APPROACH FOR MERCHANT TRANSMISSION PLANNING	1088
<i>Antonio De Paola ; Dimitrios Papadaskalopoulos ; David Angeli ; Goran Strbac</i>	
STOCHASTIC MULTISTAGE BIDDING OPTIMISATION IN AN INTRADAY MARKET WITH LIMITED LIQUIDITY	1093
<i>Edda Engmark ; Hanne Sandven ; Stein-Erik Fleten ; Gro Klæboe</i>	
SYSTEM ARCHITECTURE FOR CUSTOMER-LED DISTRIBUTION SYSTEM	1098
<i>Wangwei Kong ; Kang Ma ; Furong Li ; Liz Sidebotham</i>	
EVALUATION OF WIND ENERGY FORECASTS: THE UNDERVALUED IMPORTANCE OF DATA PREPARATION	1103
<i>Gianni Goretti ; Aidan Duffy</i>	
PROPOSALS OF IMPACT MODEL OF REGULATIONS ON COSTS IN ENERGY COMPANIES	1108
<i>Joanna Kott ; Marek Kott</i>	
PROBABILISTIC FORECASTING OF ELECTRICITY PRICES USING KERNEL REGRESSION	1113
<i>Grzegorz Dudek</i>	

GENERATION EXPANSION PLANNING IN BRAZILIAN COMPETITIVE MULTI-MARKET FRAMEWORK	1118
<i>M. D. P. Coelho ; J.T. Saraiev ; Adelino J. C. Pereira</i>	
DEVELOPMENT OF A DEMAND RESPONSE SYSTEM INTEGRATED TO PHOTOVOLTAIC MICROGENERATION AND ENERGY STORAGE USING IOT AND ARTIFICIAL INTELLIGENCE	1123
<i>Alisson Trindade Souza ; Rafael Gressler Milbradt ; Luciane Neves Canha ; Tiago Augusto Silva Santana</i>	
BENEFITS OF CLEARING CAPACITY MARKETS IN SHORT TERM HORIZON: THE CASE OF GERMANY	1128
<i>Ariobarzan Sadeghi ; Shahab Shariat Torbaghan ; Madeleine Gibescu</i>	
DYNAMIC MODELING OF PEER-TO-PEER POWER MARKET MAKING	1133
<i>Adrian Ettlin</i>	
OPTIMIZING BIDDING STRATEGIES FOR THE GERMAN SECONDARY CONTROL RESERVE MARKET: THE IMPACT OF ENERGY PRICES	1138
<i>Manuel Loesch ; Julian Rominger ; Sandeep Nainappagari ; Hartmut Schmeck</i>	
DESIGNING AN ELECTRICAL NETWORK CONFIGURATION TO IMPROVE THE EFFICIENCY OF ELECTRICITY MARKET	1143
<i>Tatjana Lomane ; Anatolijs Mahnitko ; Kristina Berzina ; Inga Zicmane</i>	
Author Index	