Tuesday, June 6

S01 - Balancing Markets: Design Options
June 6 - 16:00 – 17:30

Chair: Florian Ziel, University Duisburg-Essen, Germany

33 **Design and Performance of European Balancing Power Auctions**
Fabian Ocker, Karlsruhe Institute of Technology, Institute of Economics, Germany

145 **An Analysis of Market Mechanism and Bidding Strategy for Power Balancing Market Mixed by Conventional and Renewable Energy**
Bo Jie, Yokohama National University, Graduate School of Engineering, Japan

179 **Social Welfare of Balancing Markets**
Pavel Zolotarev, TransnetBW GmbH, System Operation, Germany

242 **A framework for ancillary services design**
Samuel Glismann, Flensburg University/TenneT TSO B.V., Energy and Environmental Management, Netherlands

S02 - RES Support Schemes
June 6 - 16:00 – 17:30

Chair: Joachim Geske, Imperial College, UK

119 **Experiences with Auctions for Renewable Energy Support**
David Fernando Mora Alvarez, Technical University of Denmark, Management Engineering, Denmark

26 **Flexibility-friendly support policies: A Nordic and Baltic perspective**
Luis Boscán, Energy Economics and Regulation Group, DTU Management Engineering, System Analysis Division, Denmark

182 **Heterogeneity of Intermittent Energy Sources and Cost-effective Renewable Policies**
Clemens Streitberger, ETH Zurich, MTEC, Switzerland

S03 - Flexibility in Energy Systems I
June 6 - 16:00 – 17:30

Chair: Behnam Zakeri, Aalto University, Finland

21 **Optimal storage dispatch in a consumer setting with local generation resources**
João Tomé Saraiva, University of Porto, Faculty of Engineering, Portugal

27 **Assessing the Upward Demand Response Potential for Mitigating the Wind Generation Curtailment: A Case Study**
Mubbashir Ali, Aalto University, Electrical Engineering and Automation, Finland

169 **Energy Flexibility in Retail Buildings: from a Business Ecosystem Perspective**
Joy Dalmacio Billanes, University of Southern Denmark, Centre for Energy Informatics, Denmark

32 **Application of Priority Service Pricing for Mobilizing Residential Demand Response in Belgium**
Yuting Mou, Université Catholique de Louvain, CORE, Belgium

S04 - Energy Finance and Macroeconomic Interdependencies
June 6 - 16:00 – 17:30

Chair: Barbara Breitschopf, Fraunhofer ISI, Germany

29 **Links between Production and Consumption of Electricity with Economic Performance in Mexico**
Ricardo Massa, CIDE, Interdisciplinary Program for Studies in Regulation and Economic Competition, Mexico

150 **The role of public investment & development banks in enabling or constraining new power generation technologies**
Bjarne Steffen, ETH Zurich, Energy Politics Group, Switzerland

74 **How cost effective is EU climate policy? Evidence from Portugal using integrated modelling**
Sara Proença, CERNAS, ESAC/Polytechnic of Coimbra, Portugal

125 **Energy Indicators Framework and Climate Change Policy Implications**
Jorge Cunha, University of Minho, Portugal

S05 – Grid Modelling and Locational Marginal Pricing
June 6 - 16:00 – 17:30

Chair: Friedrich Kunz, DIW Berlin, Germany

168 **Reduced Transmission Grid Representation using the St. Clair Curve applied to the Electric Reliability Council of Texas**
Henry Martin, Technical University of Munich, Germany

229 **Modelling the potential impacts of locational versus system-wide strike prices in contracts for difference for low carbon generation**
Shona Pennock, University of Strathclyde, United Kingdom

S06 – Dealing with Imbalances in Energy Systems
June 6 - 16:00 – 17:30

Chair: Christoph Zöphel, TU Dresden, Germany

73 **Acquisition of a Balance Responsible Party under grid restrictions in an Extended Scheduling System**
Tobias Zimmermann, Fraunhofer IOSB-AST, Germany

81 **Imbalances costs of small-scale renewable not dispatchable power plants in the Italian electricity market**
Nicola Sorrentino, University of Calabria, Italy

237 **Assessment of nodal pricing applied to imbalance settlement: approaches and issues for implementation in zonal markets**
Alessandro Zani, RSE, United Kingdom

202 **Economic evaluation in using storage to reduce imbalance costs of renewable power plants sources**
Nicola Sorrentino, University of Calabria, Department of Mechanical, Energy and Management Engineering, Italy

S07 – Small Scale Energy Storages
June 6 - 16:00 – 17:30

Chair: Jose Nuno Fidalgo, FEUP and INESC TEC, Portugal

214 **Capacity sharing – economic analysis of home battery systems**
Rafal Dzikowski, Łódź University of Technology, Institute of Power Engineering, Poland

93 **The Role of Energy Storage in Local Energy Markets**
Esther Mengelkamp, Karlsruhe Institute of Technology, Institute of Information Systems and Marketing, Germany

91 **Analysis of the Minimum Activation Period of Batteries in Frequency Containment Reserve**
Augustin Motte Cortes, Fraunhofer ISE, Smart Grids, Germany

262 **PV-Battery Community Energy Systems: Economic, Energy Independence and Network Deferral Analysis**
Nicholas Good, University of Manchester, United Kingdom

Poster Session
June 6 - 18:00 (parallel to the Welcome Reception)

The value of flexible resources to ensure generation adequacy in electricity markets
Hamid Aghaie, Austrian Institute of Technology, Austria

Model-Based Analysis of Revenue Opportunities for Battery Storage on the Day-Ahead Market using Phelix and Cap Futures
Sven Böhme, European Energy Exchange AG, Germany

Auction design for electricity markets with large penetration of renewable generation
Philipp Staudt, KIT, Germany

The Development of the German Heat and Electricity system between 2020 and 2030: Effects of Sector Coupling on Unit Commitment, Grid Use and RES-Integration
Moritz Vogel, Öko-Institut e.V., Germany

A Sector-coupling Spatial Optimization Model for the German Electricity Market – Bringing Gas and Heat into the Equation
Jens Weibezahn,Technische Universität Berlin, Germany

Interconnection of the Nordic and UK power markets – Impact on renewable energy integration in the region
Behnam Zakeri, Aalto University, Finnland

Wednesday, June 7

S08 – Market Equlibria and Stochastic Approaches
June 7 - 09:00 – 10:30

Chair: Alexander Weber, TU Berlin, Germany

92 **Assessing the Potential Benefit of Energy Storage in Emission constrained Power Markets using Equilibrium Modeling**
Magnus Askeland, SINTEF Energy Research, Norway

211 **Electricity Market Equilibria and Intermittent Renewables – A Stochastic Approach**
Thomas Möbius, BTU Cottbus-Senftenberg, Germany

241 **Assessing the Adaption of Stochastic Clearing Procedure to a Hydro-penetrated Market**
Nilufar Neyestani, INESC TEC, Centre for Power and Energy Systems, Portugal

152 **Towards a simplified approach for modeling policymaker's decisions in the power sector**
Salvador Doménech Martínez, Institute for Research in Technology, Technical School of Engineering, Comillas Pontifical University, Spain

S09 – Economic Potential of Storage Systems
June 7 - 09:00 – 10:30

Chair: Nicola Sorrentino, University of Calabria, Italy

186 **The Value of Energy Storages under Uncertain CO2-Prices and Renewable Shares**
Christoph Zöphel, TU Dresden, Chair of Energy Economics, Germany

212 **Value of multi-market trading for a hydropower producer**
Marte Fodstad, SINTEF Energy Research, Norway

106 **Economics of energy storage in the German Electricity and Reserve Markets**
Behnam Zakeri, Aalto University, Mechanical Engineering, Finland

104 **Pumped-Storage Plants improving Brazilian Interconnected System operation when facing high solar and wind sources participation**
Pedro Machado, Universidade de São Paulo, Energy and Automation, Brazil

S10 – Balancing Markets: Sizing Balancing Demand
June 7 - 09:00 – 10:30

Chair: Blazej Olek, Łódź University of Technology, Poland

82 **Dynamic Dimensioning of Balancing Reserve**
Patrick Schultheis, RWTH Aachen, Power Systems and Power Economics (IAEW), Germany

83 **Endogenous Secondary Reserves Requirements in Long-Term Electricity Generation Models**
Francisco Alberto Campos, Pontifical Comillas University, Institute for Research in Technology, Spain

58 **Machine Learning Analysis for a Flexibility Energy Approach towards Renewable Energy Integration with Dynamic Forecasting of Electricity Balancing Power**
Andreas Essl, E-Control, Austria

S11 – Analysis of Natural Gas, Coal and Oil Markets: Infrastructure and Uncertainty in Security of Supply
June 7 - 09:00 – 10:30

Chair: Joachim Geske, Imperial College, UK

10 **Investment analysis of unconventional hydrocarbon resources under uncertainty**
Anca Costescu, European Commission, JRC Directorate C, Energy Security, Distribution and Markets Unit, Netherlands

72 **The changing landscape of world gas markets at the horizon 2020**
Sina Heidari, House of Energy Markets & Finance, Chair for Management Science and Energy Economics, Germany

94 **Advanced Simulation Solutions to overcome Limitations to Forecasting Scenarios for Natural Gas Trading**
Joel Enderlin, ENGIE, Strategy Division, France

143 **Resilience in the German Natural Gas Network: Modelling Approach for a High-Resolution Natural Gas System**
Philipp Hauser, TU Dresden, Chair of Energy Economics, Germany

S12 – Cross-sectoral Analysis
June 7 - 09:00 – 10:30

Chair: Sara Proença, CERNAS, ESAC/Polytechnic Institute of Coimbra, Portugal

28 **Aggregated modelling approach of power and heat sector coupling technologies in power system models**
Philipp Härtel, Fraunhofer IWES, Energy Economy and Grid Operation, Germany

126 **Coupling of Electricity and Gas Market Models**
Timo Kern, Forschungsgesellschaft für Energiewirtschaft mbH, Germany

160 **Power market impacts of increased use of electricity in the heating sector**
Jon Gustav Kirkerud, Norwegian University of Life Sciences, Norway

S13 – Congestion Management
June 7 - 09:00 – 10:30

Chair: Friedrich Kunz, DIW Berlin, Germany

274 **The Division of the Common German-Austrian Electricity Market from a Legal Perspective**
Florian Strangl, CHSH Attorneys at Law, Austria

165 **Analysis of Redispatch and Transmission Capacity Pricing on a Local Electricity Market Setup**
Philipp Staudt, KIT, IISM, Germany

224 **Combined power market and power grid modeling – First results of the project "SystemKontext"**
Denis Mende, Fraunhofer IWES, Transmission Grids, Germany

250 **Integrating Balancing Reserves and Congestion Management to Re-balance the German System**
Carla Mendes, University of Basel, Switzerland

S14 – Innovative Business Models
June 7 - 09:00 – 10:30

Chair: Bjarne Steffen, ETH Zurich, Switzerland

176 **Ancillary services – between need for a market and decentral business cases**
Judith Litzenburger, EnergieAgentur.NRW, Energymarketdesign, Germany

227 **Market-based business model for flexible energy aggregators in distribution networks**
Jernej Zupančič, University of Ljubljana, Facukty of Electrical Engineering, Slovenia

98 **Effects of Implementing Decentralized Business Models at Neighborhood Energy System Level: A Model Based Cross-sectoral Analysis**
Fabian Scheller, Institute for Infrastructure and Resources Managemen (IIRM), Leipzig University, Leipzig, Germany

228 **A review of business models for small prosumers in a post-RES subsidy and post-priority dispatch world**
Tomi Medved, University of Ljubljana, Facukty of Electrical Engineering, Slovenia

S15 – Flexibility in Energy Systems II
June 7 - 14:00 – 15:30

Chair: Nicholas Good, University of Manchester, UK

167 **Value Assessment of Aggregated Energy Flexibility when traded on Multiple Markets**
Pamela MacDougall, TNO, Monitoring and Control Services, Netherlands

78 **The Role of Demand Side Management for the System Integration of Renewable Energies**
Theresa Müller, TU Dresden, Chair of Energy Economics, Germany

96 **Demand Side Response Aggregators: how they decide customer suitability**
Mitchell Curtis, University of Reading, Technologies for Sustainable Built Environments Centre, United Kingdom

111 **Assessing Storage and Substitution as Power Flexibility enablers in Industrial Processes**
Margarida Henriques, Instituto Superior Técnico, Mechanical Engineering, Portugal

S16 – Generation Expansion Planning
June 7 - 14:00 – 15:30

Chair: Emre Çelebi, Kadir Has University, Turkey

127 **Electricity Capacity Expansion in a Cournot Duopoly**
Helene Brøndbo, Norwegian University of Science and Technology, Norway

76 **Generation Expansion Planning under Uncertainty: An Application of Stochastic Methods to the German Electricity System**
Friedrich Kunz, DIW Berlin, Energy, Transport, Environment, Germany

38 **Generation Expansion Planning under Uncertainty Considering Power-to-Gas Technology**
Niklas van Bracht, Institute of Power Systems and Power Economics, RWTH Aachen University, Germany

95 **Optimizing capacity extensions in power systems: a case study of Bavaria and a comparison to Texas**
Thomas Deetjen, University of Texas at Austin, Mechanical Engineering, United States

S17 – Energy Markets: Market Coupling
June 7 - 14:00 – 15:30

Chair: Jose Villar, Universidad Pontificia Comillas, Spain

88 **Impact of Generation Shift Key Determination on Flow Based Market Coupling**
Constantin Dierstein, TU Dresden, Germany

258 **Market-coupling and the impact of cross border flows on the balancing of power demand**
Aleksandra Baczynska, Łódź University of Technology, Institute of Electrical Power Engineering, Poland

273 **What is the impact of the EU Energy Union on electricity prices? Results for selected member states**
Barbara Breitschopf, Fraunhofer ISI, Energy policy and markets, Germany

114 **The application of a flow-based methodology for yearly network analysis according to market data**
Benedetto Aluisio, Politecnico di Bari, Electrical and Infomation Engineering, Italy

S18 – Electricity Market Design for Renewable Integration
June 7 - 14:00 – 15:30

Chair: Luis Boscán, Technical University of Denmark (DTU), Denmark

178 **Defining a day-ahead spot market for unbundled time-specific renewable energy certificates**
Christian Will, Karlsruhe Institute of Technology (KIT), Daimler AG, Institute for Industrial Production (IIP), Germany

112 **Electricity markets overview – market participation possibilities for renewable and distributed energy resources**
Ivan Pavić, University of Zagreb Faculty of Electrical Engineering and Computing, Department of Energy and Power Systems, Croatia

185 **Future Electricity Market Structure to Ensure Large Volume of RES**
Artjoms Obushevs, Institute of Physical Energetics, Smart Grid Research Centre, Latvia

263 **Designing electricity markets to integrate both energy efficiency and renewable energy policies: Future-proofing residential electricity retail tariffs**
Lisa Ryan, University College Dublin, School of Economics, Ireland

S19 – System Operators and Security of Supply
June 7 - 14:00 – 15:30

Chair: Blazej Olek, Łódź University of Technology, Poland

155 **The Operational Difficulty of Standardizing Frequency Restoration Products**
Marc Scherer, Swissgrid Ltd., Switzerland

64 **Sizing of a photovoltaic-storage system for power system frequency support**
Ali Mubbashir, Aalto University, Department of Electrical Engineering and Automation, Finland

164 **Energy Markets Impact on the Risk of Cascading Failures in Power Systems**
Bing Li, ETH Zurich, Reliability and Risk Engineering Laboratory, Switzerland

292 **Exceptional Events Classification in the Portuguese Quality of Electricity Supply Regulation**
Hugo Pousinho, ERSE, Portugal

S20 – Local Energy Markets
June 7 - 14:00 – 15:30

Chair: Andrej Gubina, University of Ljubljana, Slovenia

139 **Trading on Local Energy Markets: A Comparison of Market Designs and Bidding Strategies**
Esther Mengelkamp, Karlsruhe Institute of Technology, Institute of Information Systems and Marketing, Germany

36 **On the Efficiency of Local Electricity Markets**
Hélène Le Cadre, VITO / EnergyVille, Belgium

89 **Waste incineration plants as the supportive element of a local energy network**
Christoph Pieper, TU Dresden, EVT, Germany

122 **Evaluation of the effects of time-of-use pricing for private households based on measured load data**
Michael Hinterstocker, Forschungsgesellschaft für Energiewirtschaft mbH, Germany

Thursday, June 8

S21 – Modelling Balancing Power Markets
June 8 - 09:00 – 10:30

Chair: Jose Nuno Fidalgo, FEUP and INESC TEC, Portugal

70 **Modelling reserve management strategies and assessing impacts on short term markets with the OPTIMATE prototype simulation platform**
Marco Schudel, RTE, R&D, France

80 **Estimation of the Spanish Secondary Reserves Requirements**
José Villar, Comillas Pontifical University, Institute for Applied Research (IIT), Spain

116 **Interdependencies of harmonised procurement of manually and automatically activated FRR in selected Central European Balancing Markets**
Bettina Burgholzer, TU Wien – EEG, Austria

260 **Balancing Reserves in the Light of 2050 – From Model Fundamentals to Market Developments**
Casimir Lorenz, TU Berlin / DIW Berlin, WIP / EVU, Germany

S22 – Transmission System Planning
June 8 - 09:00 – 10:30

Chair: Christoph Neumann, TenneT TSO GmbH, Germany

15 **Transmission System Planning Considering Solar Distributed Generation Penetration**
Phillipe Vilaça Gomes, INESCTEC, Centre for Power and Energy Systems, Portugal

295 **Robust Transmission Planning – An Application to the Case of Germany in 2050**
Alexander Weber, TU Berlin, FG WIP, H33, Germany

272 **The role of spatial scale in joint optimisations of generation and transmission for European highly renewable scenarios**
Jonas Hörsch, Frankfurt Institute for Advanced Studies, Germany

52 **Generation/transmission investment planning integrated with market equilibrium models in electricity markets**
Emre Çelebi, Kadir Has University, Industrial Engineering, Turkey

S23 – Modelling and Simulation of Energy and Carbon Markets

June 8 - 09:00 – 10:30

Chair: Thomas Walther, TU Dresden, Germany

85 **Determinants of Power Hedging Mechanisms in Liberalized Electricity Markets**
Petr Spodniak, ESRI Trinity College Dublin, Economic Analysis Department of Economics, Ireland

199 **Structural breaks in emission allowance prices**
Peter Molnár, University of Stavanger, UiS Buisness School, Norway

148 **Volatility spillovers in the Iberian electricity market**
João Lagarto, ISEL/ADEEEA, INESC-ID, Portugal

183 **Carbon Leakage and Competitiveness: Socio-economic Impacts of Greenhouse Gas Emissions Decrease on the European Area Until 2050**
Roland Cunha Montenegro, Universität Stuttgart, Institut für Energiewirtschaft und Rationelle Energieanwendung (IER), Germany

S24 – Mobility Sector

June 8 - 09:00 – 10:30

Chair: Nilufar Neyestani, INESC TEC, Portugal

223 **Climate policy beyond the European Emissions Trading System: Spotlight on the Transport Sector in Germany**
Heidi Ursula Heinrichs, Forschungszentrum Jülich, Germany

238 **Using electric vehicles as flexible resource in power systems: case study in the Netherlands**
Sylvain Quoilin, European Commission University of Liège, Joint Research Centre Energy Systems, Netherlands

291 **Macro environmental analysis of the electric vehicle battery second use market**
Robert Reinhardt, Universitat Politècnica de Catalunya – Barcelona, Project and Construction Engineering, ESEIAAT, Spain

198 **Valuation of Contract Between Power supplier and Electric Vehicle Owner**
Josip Vasilj, Chalmers University of Technology, Signals and Systems, Sweden

S25 – Hydropower
June 8 - 09:00 – 10:30

Chair: Theresa Müller, TU Dresden, Germany

54 **Operational hydropower scheduling with post-spot distribution of reserve obligations**
Jiehong Kong, SINTEF Energy Research, Energy Systems, Norway

55 **Operational use of marginal cost curves for hydropower plants as decision support in real-time balancing markets**
Hans Ivar Skjelbred, SINTEF Energy Research, Energy Systems, Norway

71 **Hydropower operation in a changing environment**
Moritz Schillinger, University of Basel, Switzerland

18 **Optimization of Cascaded Hydro Units Modeled as Price Makers Using the linprog Function of MATLAB® and Considering the Tailwater Effect**
Mário Castro, FEUP, DEEC, Portugal

S26 – Load Forecasting
June 8 - 09:00 – 10:30

Chair: Giovanni Sansavini, ETH Zurich, Switzerland

207 **Modelling of Demand Response for Utility's Load Forecasting**
Smita Lokhande, Tata Consultancy Services Ltd., India

220 **Where are the electricity load hotspots in 2035? A load curve analysis considering demographic and technological changes**
Anna-Lena Klingler, Fraunhofer Institute for Systems and Innovation Research ISI, Energy Technology and Energy Systems, Germany

140 **Improvement of Standard Load Profiles: Updating and Regionalization based on Smart Meter Data**
Daniel Scholz, University of Technology Cottbus-Senftenberg, Chair of Energy Economics, Germany

163 **Short-Term Load Forecasting of Multiregion Systems Using Mixed Effects Models**
Miguel López, Universidad Miguel Hernandez, Spain

S27 – Energy System Analysis and Adequacy of Supply
June 8 - 09:00 – 10:30

Chair: Artjoms Obushevs, Institute of Physical Energetics, Latvia

66 **Adequacy of Power Capacity during Winter Peaks in Finland**
Jaakko Jääskeläinen, Aalto University, Mechanical Engineering, Finland

190 **Nuclear and Coal Moratoria Effects on the European Electricity System**
Jonas Savelsberg, University of Basel, Energy Economics, Switzerland

205 **Considering power plants mothballing in long term simulation models for liberalized power markets**
Ahmed Ousman Abani, MINES ParisTech / PSL-Research University Microeconomix, Centre for Industrial Economics (CERNA), France

90 **Managing Energy Risk – A Case Study Of Bulgaria With No Nuclear Power**
Elena Dimitrova, Laboratory for Energy Conversion, ETH Zurich, Switzerland

S28 – Flexibility in Energy Systems III
June 8 - 11:00 – 12:30

Chair: Jeremy Lin, PJM Interconnection, USA

124 **Attractiveness of demand response in the Nordic electricity market – present state and future prospects**
Antti Rautiainen, Tampere University of Technology, Finland

128 **Smart Demand Side Management: Storing energy or storing consumption – it is not the same!**
Joachim Geske, Imperial College, Business School, United Kingdom

149 **Regulatory barriers for activating flexibility in the Nordic-Baltic electricity market**
Claire Bergaentzlé, DTU, Management Engineering, Denmark

215 **Assessing the Flexibility Potential of the Residential Load in Smart Electricity Grids – A Data-Driven Approach**
Delaram Azari, Wageningen University, Environmental Technology, Netherlands

S29 – Simulation of Spot Electricity Markets
June 8 - 11:00 – 12:30

Chair: Christoph Mayer, OFFIS e.V. - Institute for Information Technology, Germany

25 **Empirical comparison of three models for determining market clearing prices in Turkish day-ahead electricity market**
Nermin Elif Kurt, Energy Exchange Istanbul Koc University, Industrial Engineering and Operations Management, Turkey

87 **Modeling the impact of wind and solar power forecasting errors on intraday electricity prices**
Florian Ziel, University Duisburg-Essen, Germany

172 **Forecasting Volatility in the EPEX market**
Peru Muniain, The University of the Basque Country, UPV/EHU Economic Analysis II, Spain

S30 – Analysis of Natural Gas, Coal and Oil Markets: Market Dynamics and Price Volatility
June 8 - 11:00 – 12:30

Chair: Philipp Hauser, TU Dresden, Germany

14 **Price volatility across the Atlantic: the US and the European Natural Gas Markets**
Daniele Costa, FEUP, DEM , CERENA , Portugal

59 **Russian gas market: domestic market deregulation impact on electricity prices**
Evgenia Vanadzina, Lappeenranta University of Technology, Lab. Electricity Market and Power Systems, Finland

156 **The end of long-term contracts? Gas price and market dynamics in Central and Eastern Europe**
Barbara Breitschopf, Fraunhofer ISI, Energy policy and markets, Germany

192 **Google Searches and Gasoline Prices**
Peter Molnár, University of Stavanger, Norway

S31 – Market Price Analysis
June 8 - 11:00 – 12:30

Chair: Richard Scharff, Vattenfall AB, Sweden

147 **Short-term forecasting of electricity prices with a computationally efficient hybrid approach**
Rodrigo de Marcos, Institute for Research in Technology (IIT) - Comillas Pontifical University, Decision Support Systems for the Energy Sector Research Group, Spain

117 **Intraday Market Asymmetries – a Nordic Example**
Emilie Rosenlund Soysal, Technical University of Denmark, Management Engineering, Systems analysis, Denmark

79 **Sensitivity of electricity prices in energy-only markets with large amounts of zero marginal cost generation**
Niina Helistö, VTT, Finland

109 **The effect of hydro and wind generation on the mean and volatility of electricity prices in Spain**
João Pedro Pereira, Universidade Nova de Lisboa, Nova School of Business and Economics, Portugal

S32 – Distribution Networks
June 8 - 11:00 – 12:30

Chair: Christoph Neumann, TenneT TSO GmbH, Germany

196 **Policies for an EU smarter grid environment: A Delphi study on DSOs**
Patrícia Pereira da Silva, INESC Coimbra – CeBER, University of Coimbra, Portugal

187 **Minimization of Distribution System Losses By Exploiting Storage and Anticipating Market-Driven Behavior of Wind Power Producers**
Mana Farrokhseresht, Eindhoven University of Technology TU/e, Electrical Energy Systems, Netherlands

226 **Procurement of Network Loss – System Operators as Traders?**
Dániel Divényi, Budapest University of Technology and Economics, Electric Power Engineering, Hungary

S33 – Agent-Based Modelling
June 8 - 11:00 – 12:30

Chair: Lisa Ryan, University College Dublin, Ireland

118 **Price-based vs. load-smoothing pumped storage operation: Long-term impacts on generation adequacy**
Christoph Fraunholz, Karlsruhe Institute of Technology, Chair of Energy Economics, Germany

253 **Agent-based Model of the German Heating Market: Simulations concerning the Use of Wood Pellets and the Sustainability of the Market**
Beatriz Beyer, Georg-August-University Göttingen, Germany

60 **Simulation of the Iberian Electricity Market Using an Agent Based Model and Considering Hydro Stations**
José Sousa, FEUP, DEEC, Portugal

144 **Willingness to pay for green energy: an agent-based model in NetLogo platform**
Anna Kowalska-Pyzalska, Wroclaw University of Science and Technology, Department of Operations Research, Poland

S34 – Wind Energy: System Aspects
June 8 - 16:00 – 17:00

Chair: Joao Tome Saraiva, FEUP and INESC TEC, Portugal

142 **Integration of wind power – challenges and options for near term market integration and its impact on future cross sectorial use**
Philip Tafarte, UFZ - Helmholtz Centre for Environmental Research, Bioenergy, Germany

146 **Impacts of offshore grid developments in the North Sea region on market values by 2050: How will offshore wind farms and transmission lines pay?**
Thure Traber, Technical University of Denmark, Management Engineering, Denmark

135 **Balancing needs and measures in the future West Central European power system with large shares of wind and solar resources**
Ingeborg Graabak, NTNU, Electric Power Engineering, Norway

S35 – Storage Systems and Distribution Network
June 8 - 16:00 – 17:00

Chair: Petr Spodniak, ESRI Trinity College Dublin, Ireland

37 **Cost of Optimal Placement of a CHP Plant Within Existing UDN**
Sreto Boljevic, Cork Institute of Technology, Electrical, Ireland

84 **Techno-Economic Analysis for Optimal Energy Storage Systems Placement Considering Stacked Grid Services**
Dimitrios Doukas, Aristotle University of Thessaloniki, Electrical and Computer Engineering, Greece

234 **Energy storing vs. generation curtailment – the measures for controlling renewable generation**
Mateusz Andrychowicz, Łódź University of Technology, Faculty of Electrical, Electronic, Computer and Control Engineering, Poland

S36 – Wind Forecasting and Assessment
June 8 - 16:00 – 17:00

Chair: Tony Klein, TU Dresden, Germany

288 **Modeling of Wind Speed Spatio-Temporal Series by Multivariate-GARCH and Copula/GARCH models**
Costantino Rango, University of Camerino, School of Sciences and Technology, Italy

209 **The Accuracy of Wind Energy Forecasts and Prospects for Improvement**
Kevin Forbes, Catholic University of America, United States

69 **The Impact of Power Curve Estimation on Commercial Wind Power Forecasts - An Empirical Analysis**
Gianni Goretti, Dublin Institute of Technology, School of Civil and Structural Engineering, Ireland

S37 – Methodological Aspects and Technologies
June 8 - 16:00 – 17:00

Chair: Michael Zipf, TU Dresden, Germany

266 **Cost of Deficit Function: Conceptual and Methodological Aspects with an Evaluation of Impacts on the Operation and Expansion of the Brazilian Electricity Sector**
Clarissa Petrachini Goncalves & Marcos Basile Saviano de Paula, Energy and Automation, University of São Paulo, Brazil

280 **Solar Energy for Descentralized Energy Supply: a real option approach**
Gheisa Esteves, PUC-Rio, Brazil

S38 – Cross Border Trading
June 8 - 16:00 – 17:00

Chair: Matthew Schmidt, TU Dresden, Germany

213 **Cross Border Commercial Flow of Electricity for Germany: What does market data tell us?**
Samarth Kumar, TU Dresden, Business and Economics, Germany

257 **Direct current market coupling: Sweden – Poland – Lithuania – Sweden**
Waldemar Niewiadomski, Łódź University of Technology, Institute of Electrical Power Engineering, Poland

S39 – Spatial and Temporal Interdependencies in the Power System
June 8 - 16:00 – 17:00

Chair: Ramteen Sioshansi, The Ohio State University, USA

174 **Allocation of nodal costs in heterogeneous highly renewable European electricity networks**
Mirko Schäfer, Aarhus University, Department of Engineering, Denmark

24 **Spatial and temporal power shifting from flexibility sources. An economic and environmental assessment**
Amanda Spisto, JRC, Directorate C. for Energy, Transport and Climate, Netherlands

S40 – Energy Efficiency and Human Behaviour
June 8 - 16:00 – 17:00

Chair: Hannes Hobbie, TU Dresden, Germany

233 **Modeling the impact of energy efficiency in the electricity consumption of the Brazilian tertiary sector**
Bruno Quaresma Bastos, PUC-Rio, Industrial Engineering, Brazil

43 **Which are the Energy Efficiency determinants in Portuguese innovative firms?**
Margarita Robaina, University of Aveiro, Portugal

133 **Understanding consumers' renewable energy behaviour beyond "homo economicus": An exploratory survey in four European countries**
Kirsi Kotilainen, Tampere University of Technology, Industrial Management, Finland

Friday, June 9

S41 – Flexibility in Energy Systems IV
June 9 - 09:00 – 10:30

Chair: Thure Traber, DTU, Denmark

230 **Estimation of electricity value for households participating in demand response programs**
Piotr Piasecki, Poznan University of Technology, Electric Engineering, Poland

246 **Impacts of Different European Renewable Expansion Strategies on the Future Demand for Flexibility Options Like Storage and Transmission Grid**
Frank Merten, Wuppertal Institut, Future Energy and Mobility Structures, Germany

203 **Comparison of techno-economic characteristics of different flexibility options in the European energy system**
Theresa Müller, TU Dresden, Germany

S42 – Grid Tariffs
June 9 - 09:00 – 10:30

Chair: Fabian Hinz, TU Dresden, Germany

141 **Design of Dynamic Grid Tariffs in Electricity Systems with Large Shares of Variable Renewable Energy**
Klaus Skytte, DTU Management Engineering, Energy Economics and Regulation, Denmark

136 **Effects of major tariff changes by distribution system operators on profitability of photovoltaic systems**
Jouni Haapaniemi, Lappeenranta University of Technology, School of Energy Systems, Finland

191 **Network Pricing for Smart Grids considering Customers' Diversified Contribution to System Peak**
Xinhe Yang, University of Bath, Electrical and Electronic Engineering, United Kingdom

243 **How to handle generation at the lowest grid levels in network charges**
Christine Brandstätt, Jacobs University Bremen, Energy Economics, Germany

S43 – Impact of RES on Electricity System
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Chair: Kevin Forbes, The Catholic University of America, USA

16 **Analyzing the influence of Climate Change in Brazilian Electricity Markets**
Mário Domingos Pires Coelho, University of Porto, Faculty of Engineering, MIT Portugal Program - Sustainable Energy Systems, Portugal

39 **The Impact of Electrification on Power System in Northern Europe**
Hossein Farahmand, Norwegian University of Science and Technology, Electrical Power Engineering, Norway

63 **Prospects, Barriers and Possible Mitigation Measures of Integrating Renewable Energy into Kenyan Power System and Market**
Ibrahim Olalekan Abdulganiyu, Lappeenranta University of Technology, Electrical Engineering, Finland

137 **Capabilities of transformation from carbon-based into a sustainable and low-emission energy mix. Case study for Poland.**
Wojciech Lyzwa, Łódź University of Technology, Institute of Electrical Power Engineering, Poland

S44 – Capacity Markets
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Chair: Joao Tome Saraiva, FEUP and INESC TEC, Portugal

44 **Impact of Capacity Market Design on Power System Decarbonization**
Jeremy Lin, PJM Interconnection, United States

42 **Energy resources adequacy in the electric sector: A review of market mechanisms and products**
Henry Torres-Valderrama, Universidad Nacional de Colombia, Colombia

287 **Capacity market in Poland – evalutaion of the proposed solution**
Izabela Filipiak, Łódź University of Technology, Institute of Electrical Power Engineering, Poland

231 **Short Term Clearing of Capacity Markets: An Alternative Approach to Capacity Pricing**
Ariobarzan Sadeghi, Eindhoven University of Technology, Electrical Energy Systems, Netherlands

S45 – Scenarios, Modelling and Timely Granularity
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Chair: Alexander Weber, TU Berlin, Germany

184 **Market integration VS Temporal granularity: how to provide needed flexibility resources?**
Olivier Borne, CentraleSupélec, France

282 **POTEnCIA: A new EU-wide energy sector model**
Leonidas Mantzos, European Commission, JRC-C6, Spain

134 **Cross-Impact Balance as an Approach for the Development of Consistent Storylines for the European Energy Market**
Paul Kunz, Forschungszentrum Jülich GmbH, IEK-STE, Germany

41 **Development of Adaptive Time Patterns for Multi-Dimensional Power System Simulations**
Denis vom Stein, RWTH Aachen University, Institute of Power Systems and Power Economics, Germany

S46 – Wind Energy: Bidding Strategies and Investment Decisions
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Chair: Florian Ziel, University Duisburg-Essen, Germany

47 **Medium-term trading portfolio for coordinated wind and thermal energy**
Zechen Wu, Xi'an Jiaotong University, Electrical Engineering, China

45 **Optimal Dispatch of Wind Farms Facing Market Prices**
Gilles Bertrand, UCL, CORE, Belgium

102 **Valuation of Combined Wind Power Plant and Hydrogen Storage: A Decision Tree Approach**
Martin Schuster, TU Dresden, Faculty of Business and Economics, Germany

S47 – Power To X
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Chair: Hans Ivar Skjelbred, Sintef Energy Research, Norway

68 **Power-to-Hydrogen and Hydrogen-to-X: Which markets? Which economic potential? Answers from the literature**
Olfa Tlili, CEA, Université Paris Saclay, France

151 **Economic Potential of Water Electrolysis within Future Electricity Markets**
Patrick Larscheid, RWTH Aachen University, Institute of Power Systems and Power Economics (IAEW), Germany

248 **Regional Effects of Hydrogen Production in Congested Transmission Grids with Wind and Hydro Power**
Espen Flo Bødal, NTNU, Electric Power Engineering, Norway

65 **Power-to-Hydrogen and Hydrogen-to-X pathways: opportunities for next generation energy systems**
Olfa Tlili, CEA, Université Paris Saclay, France

S48 – Integration of European Electricity Markets
June 9 - 14:00 – 15:30

Chair: Jiehong Kong, SINTEF Energy Research, Norway

40 **Addressing the Question of Regional Generation Adequacy in Capacity Expansion Planning**
Andreas Maaz, RWTH Aachen University, Institute of Power Systems and Power Economics (IAEW), Germany

123 **Multi-area electricity market equilibrium model and its application to the European case**
Alberto Orgaz, Institute for Research in Technology (IIT) - Comillas Pontifical University, Decision Support Systems for the Energy Sector, Spain

254 **Scenarios for Decarbonizing the European Electricity Sector**
Clemens Gerbaulet, TU Berlin, DIW Berlin, Germany

210 **The effects of harmonized European climate policy targets in comparison to national targets utilizing a European electricity market model**
Lukas Nacken, BTU Cottbus-Senftenberg, Chair of Energy Economics, Germany

S49 – Tariff Structures
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Chair: Philipp Hauser, TU Dresden, Germany

129 **Development options for distribution tariff structures in Finland**
Samuli Honkapuro, Lappeenranta University of Technology, LUT School of Energy Systems, Finland

138 **Aspects of Advancement of Distribution Tariffs for Small Consumers in Finland**
Kimmo Lummi, Tampere University of Technology, Department of Electrical Engineering, Finland

35 **Segmentation of Low Voltage Consumers for Designing Individualized Pricing Policies**
Maria Kotouza, Aristotle University of Thessaloniki, Electrical and Computer Engineering, Greece

S50 – Energy Markets
June 9 - 14:00 – 15:30

Chair: Ramteen Sioshansi, The Ohio State University, USA

177 **Transparency versus efficiency in the MIBEL market**
Nuno Fidalgo, Faculty of Engineering of Porto University, DEEC, Portugal

188 **Improving Gradient Constraint of Complex Energy Orders on Power Exchanges**
Anna Mogyorósi, Budapest University of Technology and Economics, Electric Power Engineering, Hungary

245 **The review of market power detection tools in organised electricity markets**
Edin Lakic, University of Ljubljana, Faculty of Electrical Engineering, Slovenia

247 **Real time data analytics platform for power grid smart applications**
Magda Foti, University of Thessaly, Electrical and Computer Engineering, Greece

S51 – Virtual Power Plants

June 9 - 14:00 – 15:30

Chair: Andrej Gubina, University of Ljubljana, Slovenia

158 **Hybrid-Heating-Systems in Lokal Virtual Power Plants**
Liya Ma, TU Dresden, Institute of Electrical Power Systems and High Voltage Engineering, Germany

100 **Transmission Grid Stabilization using Virtual Power Plants**
Sören Graupner, Leipzig University, Institute for Infrastructure and Resources Management, Germany

56 **Technical integration of Virtual Power Plants into German System Operation**
Andre Richter, Otto-von-Guericke University Magdeburg, Institute for Electric Power Systems, Germany

232 **Power parks for maximization of renewable energy consumption**
Mateusz Andrychowicz, Łódź University of Technology, Faculty of Electrical, Electronic, Computer and Control Engineering, Poland

S52 – Market Design Options

June 9 - 14:00 – 15:30

Chair: Christoph Mayer, OFFIS e.V. - Institute for Information Technology, Germany

132 **Rethinking Short-Term Electricity Market Design: Options for Market Segment Integration**
Christoph Neumann, TenneT TSO GmbH, Germany

162 **Electricity and telecommunication markets: A discussion of market designs**
Philipp Staudt, KIT, IISM, Germany

251 **New market roles changing the electricity market model**
Beáta Polgári, Budapest University of Technology, Hungary