



10th International Conference on the European Energy Market

27 - 31 May 2013, Stockholm, Sweden



Welcome to Stockholm
the green city of Europe

An aerial photograph of Stockholm, Sweden, showing the city's dense urban landscape, numerous churches with spires, and the surrounding water and green spaces.

Welcome!

It is great pleasure to welcome you to the 10th European Energy Market Conference, EEM13, in Stockholm, Sweden, May 27-31 2013.

The International Conference on the European Energy Market is a premier forum for the exchange of ideas, open and direct discussion on the development of the energy markets in Europe. It has achieved a considerable success during the past nine editions covering the electricity and gas markets policies and experiences, climate change impacts on the sector and developments at the European level.



In 2013 this event is hosted in the KTH Royal Institute of Technology in Stockholm. The conference hosted several sessions with keynote speakers from the European institutions, industries, market agents and prominent academicians. Our parallel tracks with presentations and poster sessions covered a variety of energy topics, including a few new ones, focusing on the latest research. We had prepared a rich networking and social program, enabling additional discussion opportunities for the exchange of best practices.

On behalf of the local organising committee, I wish you a pleasant stay in Stockholm and I hope that the conference will be a rewarding and useful experience for you and your foundation's work.

Lennart Söder,

General-chair of the 10th European Energy Market Conference.



On behalf of local organising committee, it is my great pleasure to welcome all participants of the 13th European Energy Market (EEM13) conference to KTH Royal Institute of Technology. KTH in Stockholm is the largest, oldest and most international technical university in Sweden. There are a total of almost 14,000 undergraduate students and more than 1,700 active postgraduate students. KTH has just over 4,600 employees. Several national research centers are hosted by KTH. KTH is also a major partner in two out of

three European Knowledge and Innovation Communities formed by the prestigious EU organization EIT (European Institute of Innovation and Technology); InnoEnergy within the field sustainable energy and EIT ICT Labs within information and communication research. Five strategic multidisciplinary research platforms have been formed to further enhance KTH's attraction as a major strategic research partner. The 2013 edition of the European Energy Market conference is hosted by the Department of Electric Power Systems (EPS) in KTH. In EEM13, we received 204 full papers to be reviewed. After careful review by at least two international reviewers, the 158 best papers were accepted and scheduled for oral presentations. The following bar chart shows the contributions of different countries in EEM13.

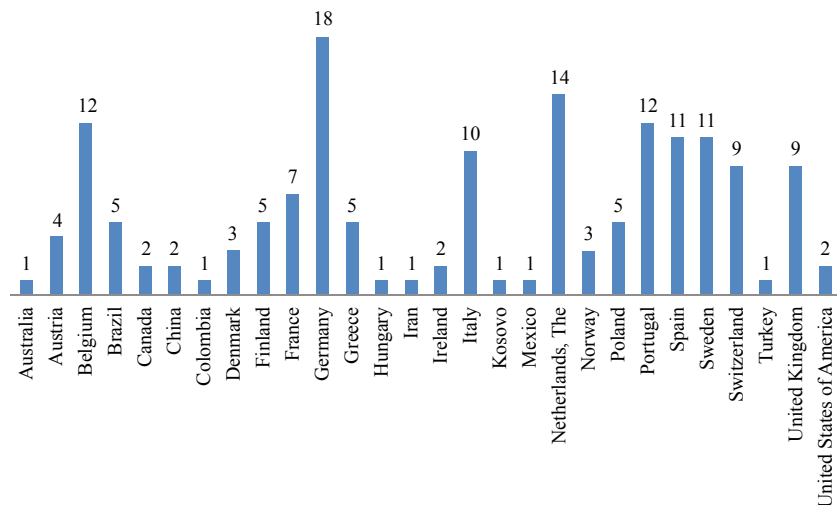
Regarding the topics of the conference, 56 papers discussed Electricity market policies, structures and rules, 28 papers transmission and distribution systems, 47 papers were focused on power generation and renewable energies, 11 papers on integrated European market, 13 papers on gas, carbon, and financial markets, 6 papers on competition law, and finally 52 papers on energy economics and mechanism design. Almost all EEM13 papers were discussed at least two conference topics. Special thanks go to the members of the Electricity Market Research Group (EM-ReG) at KTH (I listed them below) who actively helped me in organizing the EEM13. Without their helps, it was impossible to host the EEM13 in KTH. I am delighted that you are able to participate, and I hope that you find the meetings that you attend to be stimulating and informative.

*With best regards,
Mohammad R Hesamzadeh.*

Local organizing committee:

- Mohammadreza Baradar
- Mana Farrokhsereh
- Nakisa Farrokhsereh
- Shan Huang
- Ekaterina Moiseeva
- Kristina Östman
- Mahir Sarfati
- Yaser Tohidi
- Yelena Vardanyan

Number of accepted papers from different countries





Darryl R. Biggar is an economist with the Australian Competition and Consumer Commission and the Australian Energy Regulator. He specializes in the economics of regulation, including issues such as the design of incentive mechanisms, foundations of regulation, and the design of electricity markets and water markets. He has a particular interest in electricity markets including issues of nodal and zonal pricing and the measurement and control of market power. Prior to the ACCC, he worked for the OECD in Paris, the New Zealand government, and for University College, London. Biggar has a PhD in economics from Stanford University and an MA in Mathematics from Cambridge University.



Frank A. Wolak is the Holbrook Working Professor of Commodity Price Studies in the Economics Department and the Director of the Program on Energy and Sustainable Development at Stanford University. From January 1, 1998 to March 30, 2011, Wolak was the Chair of the Market Surveillance Committee (MSC) of the California Independent System Operator. In this capacity, he prepared over 60 reports and opinions on the market design, performance, and oversight of the California electricity market for the management and Board of Governors of the California ISO and the Federal Energy Regulatory Commission (FERC). He has also testified numerous times at the FERC, and at various Committees of the US Senate and House of Representatives on issues relating to market monitoring and market power in energy markets. Wolak has worked on the design and regulatory oversight of the electricity markets internationally in Europe in England and Wales, Italy, the Nordic countries, and Spain; in Australia/Asia in New Zealand, Australia, Indonesia, Korea, Singapore, and the Philippines; in Latin American in Brazil, Chile, Colombia, El Salvador, Honduras, Peru, and Mexico; and the US and Canada in California, New York, PJM, Texas (ERCOT), and New England and Alberta and Ontario.



Jean-Michel Glachant took his Master's degree and Ph.D. in economics at La Sorbonne in France. His Ph.D. was published by the Presses de La Sorbonne. After having been employed by the industry and private sector he became assistant professor at La Sorbonne (1981), associate professor and finally full professor (1999). He left La Sorbonne for University Paris Sud in Autumn 2000 where he took the direction of the department of economics and founded the research team 'Groupe Réseaux Jean

Monnet' and later the European Erasmus Mundus Master EMIN (Economics and management of network industries). He has been advisor of DG TREN, DG COMP & DG RESEARCH at the European Commission and of the French Energy Regulatory Commission (CRE). He is a research partner in the CEEPR at MIT (USA), the EPRG at Cambridge University, the EEI at the University of Leuven and the GIS Larsen at University Paris Sud. His main research interests are the building of a common European energy policy (security of supply, renewable energy, energy efficiency, energy technology policy, and climate change policy), the achievement of the European energy internal market (design, regulation and competition policy), the industrial organization and market strategy of energy companies. He has been Director of the Loyola de Palacio Energy Policy Programme and Florence School of Regulation from Autumn 2008.



Ross Baldick is a Professor in the Department of Electrical & Computer Engineering at The University of Texas at Austin. He received his B.Sc. and B.E. degrees from the University of Sydney, Australia and his M.S. and Ph.D. from the University of California, Berkeley. From 1991-1992 he was a post-doctoral fellow at the Lawrence Berkeley Laboratory. In 1992 and 1993 he was an assistant professor at Worcester Polytechnic Institute. Dr. Baldick has published over forty refereed journal articles and has research inter-

ests in a number of areas in electric power. His current research involves optimization and economic theory applied to electric power system operations, the public policy and technical issues associated with electric transmission under deregulation, and the robustness of the electricity system subject to terrorist interdiction. In 1994, Dr. Baldick received a National Science Foundation Young Investigator Award. He recently completed a textbook based on a graduate class, "Optimization of Engineering Systems" that he teaches in the Electrical & Computer Engineering Department at The University of Texas. He also teaches a three-day short-course "Introduction to Electric Power for Legal, Accounting, and Regulatory Professionals" and a one-day short-course "Locational Marginal Pricing" for non-technical professionals in the electricity industry. He is an editor of IEEE Transactions on Power Systems and the chairman of the System Economics Sub-Committee of the IEEE Power Engineering Society.



Steven Stoff received his B.S. in engineering math in 1969 and his Ph.D. in economics in 1982 from U.C. Berkeley. He is the author of Power System Economics (Wiley-IEEE Press, translated into Chinese, Russian and Persian). In 1998-99 he spent a year at the Federal Energy Regulatory Commission. Starting in 1999 he consulted for PJM's market monitor. In 2002 he served as the expert economic witness before FERC for California's Public Utilities Commission in their attempt to reset long-term contracts signed during California's electricity crisis. From 2004 to 2006, he helped design

ISO-New England's capacity market and successfully defended it before FERC. In 2006 Stoff shifted his focus to climate policy, publishing Carbonomics in 2008 followed by several articles on international climate negotiations. He is now consulting for the UK's Department of Energy and Climate Change regarding their capacity market design.



Lennart Söder, born 1956, is professor in Electric Power Systems at KTH since 1999. He leads a department of 40 people engaged in research and education in the field of Electric Power Systems. This includes studies of power system stability, transfer opportunities, electricity price formation, smart grid, the impact of wind and solar energy, regulation of hydropower, the effect of economic regulation, new technologies the phase angle measurements etc. Lennart Söder has participated in several national studies and

he was the government's sole investigator for the Grid Inquiry. He is active in several international collaborative projects in Sweden, the EU and the IEA.

Integrating the full electricity market chains into the European Internal Energy Market: challenges and opportunities

by Dr. Gianluigi Migliavacca

The 2050 roadmap published by the European Commission foresees slightly less than 50% of electricity production from Wind by 2050. Such a vast integration of Renewable Energy Sources requires concrete measures put in place to compensate the corresponding variability pattern which can significantly impact the whole electricity market chain of European countries, until real-time balancing. Reserve procurement is also strongly affected, since an adequate reserve level from conventional (dispatchable) generation has to be preserved. Costs could be reduced if this reserve is shared among EU countries (i.e. extending the market coupling towards real-time). However, this would require a stronger coordination between national markets and among the operation of the different TSOs. This would go in the direction of completing the integration of the Internal Energy Market, allowing full profit to be taken of complementary generation profiles in the different nations. At the same time, we assist to a progressive increase of penetration by Virtual Power Plants (distribution side): could they prove a viable resource within a trans-national balancing/reserve market? What about the integration of bulk storage into this “puzzle”? In this period, ENTSO-E is working on 15 network codes upon relevant Framework Guidelines from ACER, among which: CACM code (consultation recently concluded), network code on forward markets (from October 2012), network code on balancing (ACER published Framework Guidelines on 18th September 2012; ENTSO-E expects to be asked to develop a network code in late 2012). Finally, the recently started European research project eBADGE aims at proposing an optimal pan-European Intelligent Balancing mechanism, piloted on the borders of Austria, Italy and Slovenia, that is also able to integrate Virtual Power Plant Systems that can assist the management of the electricity transmission and distribution grids in an optimized, controlled and secure manner. This session will provide an overview of challenges and opportunities that could arise from full market integration, with a special focus on balancing and reserve procurement. The on-going regulatory development will be presented along with the architecture of the project eBADGE and the expected results.

E-Price: trade-off reliability and costs

by Dr. Andrej Jokic

The operation of future power systems is severely influenced by the increased uncertainty of large amounts of renewable power production and increased liberalization enabling security, technical and economic operations to compete for ancillary services and grid capacities creating overlapping function and time horizon. Moreover, more parties, e.g., aggregated small producers/consumers and smart grids, have become active in the energy markets each searching for opportunities within the constraints posed by regulation. Still, at the global level of the power system, the cooperating TSOs (System Operators) together, but in each control area a single TSO, have to guarantee reliability at acceptable costs. At the same time market parties (BRP, balance responsible party and BSP, balance supplying party) try to optimize their profits utilizing the technical capabilities of their production/consumption and exploiting the common grid as much as possible while satisfying regulation. Their main concern is economy, not reliability.

In this session we will present the results and discussions of the EU project E-Price on new operating guidelines focusing on ancillary services (both forward time market-based scheduling and real-time activation) and grid constraints. The proposals are supported by thorough stability and control performance analysis in which the TSO mainly focuses on reliability and the BRPs mainly on economy.

Ahead markets

There are still some challenging problems to be solved, introduced by grid constraints and by the low predictability of renewable production and consumption, which influence both the market for energy and the markets for ancillary services. We propose a predictable solution based on thorough mathematical analysis that will always satisfy the stated grid constraints and will demand minimum costs. The consequences are, however, that uniform pricing is no longer possible. As soon as a grid connection is at its maximum capacity, price will start to deviate to reduce line overloading. We will show that, mathematically, other solutions can also be found by requesting zonal prices or uniform prices, but at additional costs. As one of the distin-

guishing features of our approach, we do not consider location prices for energy only, but also for ancillary services. We will show that we can calculate a robust solution for the needed amount and location of the ancillary services such that all unexpected imbalances within a defined set of possible imbalances (both size and location) can, in real-time, always satisfy the power balance and satisfy all network constraints. Our solution is robustly optimal.

On the BRPs side, we will present several novel solutions to support future needs, including: novel stochastic bidding approach for both energy and ancillary services markets which allow for BRPs to hedge their economy related risks associated with increased uncertainties (renewable sources); optimal coordination schemes for aggregated household consumers; BRP's robustly optimal ancillary services operation scheduling.

Real-time control

In real-time, power and energy imbalances will occur. We will show that incentive-based control, so giving parties (such as smart grids) incentives to behave properly concerning the state of the system, is a solution. With price-based control, with only price as the global quantity to stimulate parties in the required direction, we will show that a global optimum for an entire network can be achieved in steady state, satisfying all network constraints. Even with zonal pricing, such a price-based approach can be formulated and solved.

Longer term energy outlooks

by Prof. M. Howells

Affordable access to essential services underpins development. Energy fuels such services. The 'energy-system' harnesses resource, transforms it to energy carriers that are used in appliances and machinery to provide those services. In order to provide services to current and future generations, the 'energy-system' itself needs to be sustainable. This 'energy system' may impact and interact with the economy, the environment (including other physical resource or commodity systems) and society. The effects of this impact and interaction should also be sustainably managed.

The energy decision maker is thus concerned with: (i) enabling appropriate, affordable and adequate service access; (ii) ensuring the energy-system can do so in a sustainable manner; and (iii) ensuring that the broader interactions between systems does not compromise the planet's sustained development.

Polarized and politicized views typically dominate the energy debate, at national, regional and global levels. This has made it increasingly difficult for energy decision makers to untangle the evidential basis for developing consistent decision-making frameworks.

In this session we explore regional and global energy futures over the medium to long term in the context of broader sustainable development. The session will explore, global, developed and developing country transitions.

Session 1 - Chair: Robin Vujanic

Time: Tuesday, 28/May/2013: 11:30am - 1:00pm · Location: Q31

S1:1 Cost-Benefit Analysis of Multi-Terminal VSC-HVDC System Using a Proposed Mixed AC/DC Optimal Power Flow

FENG WANG¹, Tuan Le¹, Lina Bertling Tjernberg¹, Anders Mannikoff², Anders Bergman²

¹Chalmers University of Technology, Sweden; ²SP Technical Research Institute of Sweden, Sweden; feng.wang@chalmers.se

S1:2 Transmission Planning with Probabilistic Modeling of Multiple Contingencies

Mahir Sarfati, Olga Galland, Mohammad Hesamzadeh

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S1:3 The Benefit of Coordinating Congestion Management in Germany

Friedrich Kunz, Alexander Zerrahn

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S1:4 Transmission Infrastructure Investment Requirements in the Future European Low-carbon Electricity System

Danny Pudjianto, Manuel Castro, Marko Aunedi, Goran Strbac, Enrique Gaxiola

Imperial College London, United Kingdom; d.pudjianto@imperial.ac.uk

S1:5 Generation Investment and Transmission Expansion with Intermittent Resources

Lajos Maurovich Horvat¹, Trine Krogh Boomsma², Stein-Erik Fleten³, Afzal Siddiqui^{1,4}

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Session 2 - Chair: Gianluigi Migliavacca

Time: Tuesday, 28/May/2013: 11:30am - 1:00pm · Location: Q33

S2:1 Optimal Placement of EV charging station in Typical microgrid in Iran

Navid Rastegarfar², Babak Kashanizadeh¹, ali barband¹, Mehdi Vakilian²

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S2:2 Loss Reduction via Network Reconfigurations in Distribution Networks with Installed Photovoltaic Units

Aggelos S. Bouhouras^{1,2}, Theofilos A Papadopoulos^{1,2}, Georgios C Christoforidis², Grigoris K Papagiannis¹, Dimitris P. Labridis¹

¹Aristotle University of Thessaloniki (AUTH); ²Department of Electrical Engineering, Technological Education Institution of Western Macedonia, Greece; abouchou@auth.gr

S2:3 A Modeling Breakthrough for Market Design Analysis to Test Massive Intermittent Generation Integration in Markets: Results of selected OPTIMATE studies

François Beaudé¹, Adrien Atayi¹, Jean-Yves Bourmaud¹, Marcelo Saguan², Vincent Rious², Jean-Michel Glachant², Dietmar Graeber³, Enrique Rivero Puente⁴, Sascha Schröder⁵, Poul Erik Morthorst⁵, Lena Kitzing⁵, Tiziana Pagano⁶, Athanase Vafeas⁶

¹RTE; ²Florence School of Regulation, European University Institute; ³TransnetBW; ⁴Institute for Research in Technology (IIT) - University Pontificia Comillas; ⁵DTU Management Engineering (Technical University of Denmark); ⁶TECHNOFI; tpagano@symples.eu

S2:4 Wind – quo vadis? A spatially explicit assessment of the impact of fixed vs. premium based feed-in tariffs on the deployment of wind turbines

Johannes Schmidt, Georg Lehecka, Viktoria Gass, Erwin Schmid

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Session 3 - Chair: Władysław Mielczarski

Time: Tuesday, 28/May/2013: 11:30am - 1:00pm · Location: Q34

S3:1 Importance of Design Parameters on Flowbased Market Coupling Implementation

Alain Marien, Patrick Luickx, Andreas Tirez, Dominique Woitrin

CREG, Belgium; ama@creg.be

S3:2 European market integration with both physical and non-physical markets

Gregory Dourbois, Dimitris Chatzigiannis, Pandelis Biskas, Anastasios Bakirtzis

Aristotle University of Thessaloniki, Greece; gdourmpo@auth.gr

S3:3 Economic impacts of price spreads in the Nordic electricity markets

Mari Makkonen, Satu Viljainen, Petr Spodniak,

Lappeenranta University of Technology, Finland; petr.spodniak@lut.fi

S3:4 Energy Analysis of Trigenation Based on Scarce Data

Satya Gopisetty¹, Peter Treffinger²,

¹Offenburg University of Applied Sciences, Germany; ²Offenburg University of Applied Sciences, Germany; satya.gopisetty@hs-offenburg.de

S3:5 Support schemes and market design in international offshore grids

Sascha T. Schröder

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Session 4 - Chair: Carlo Lucheroni

Time: Tuesday, 28/May/2013: 11:30am - 1:00pm · Location: Q36

S4:1 Accounting for preference heterogeneity among residential energy consumers

Yingkui Yang¹, Wolfgang Haider², Hans Stubbe Solgaard³

¹University of Southern Denmark, Denmark; ²Simon Fraser University; ³University of Southern Denmark, Denmark; yya@sam.sdu.dk

S4:2 The Relationship of Constraints Cost and Load Factor: A Evaluation for the Improved ICRP Method

Jiangtao Li, Chenchen Yuan, Furong Li

University of Bath, United Kingdom; J.Li@bath.ac.uk

S4:3 Residential Market facing the New Challenges of Application of Energy Hourly Rate

Iuri Castro Figueiró, Alzenira da Rosa Abaide, Daniel Pinheiro Bernardon,

Nelson Knak Neto,

Federal University of Santa Maria - UFSM, Brazil; nelsonknakneto.eng@gmail.com

S4:4 Economic Potential of Power-to-Gas Energy Storages

Christoph Baumann, Roland Schuster, Albert Moser,

IAEW, RWTH Aachen University, Germany; bm@iaew.rwth-aachen.de

S4:5 Barriers to increased electricity interconnection between neighbouring markets

Inna Lytvyn, Neil Hewitt

University of Ulster, United Kingdom; i.lytvyn@ulster.ac.uk

Session 5 - Chair: Yannick Perez

Time: Tuesday, 28/May/2013: 2:00pm - 3:30pm · Location: Q31

S5:1 Integration of Central West Europe Spot Electricity Markets: An update

Nuno Carvalho Figueiredo^{1,2}, **Patrícia Pereira da Silva**^{1,3}

¹Universidade de Coimbra, Portugal; ²Sustainable Energy Systems, MIT-Portugal; ³INESCC Portugal; nuno.figueiredo@portugen.com

S5:2 Structural Breaks, Price and Income Elasticity and Forecast of the Monthly Italian Electricity Demand

Claudio Dicembrino¹, **Giovanni Trovato**²

¹Enel spa, Italy; ²University of Rome "Tor Vergata"; claudio.dicembrino@enel.com

S5:3 On the Design of Electricity Auctions with Non-Convexities and Make-Whole Payments

Panagiotis Andrianesis, **George Liberopoulos**

University of Thessaly, Greece; pandrianesis@hotmail.com

S5:4 What Makes a Good Hourly Price Forward Curve?

Marcus Hildmann¹, **Grégoire Caro**², **Donnacha Daly**², **Sebastiano Rossi**², **Göran Andersson**¹

¹ETH Zürich, Switzerland; ²swissQuant Group AG, Zürich, Switzerland; hildmann@eeh.ee.ethz.ch

S5:5 Hourly energy and secondary reserve joint dispatch with a hydro-thermal technological based representation

Pablo González Gascón y Marín, **Cristian A. Díaz**, **José Villar**, **Alberto Campos**

Institute for Research in Technology (IIT), Spain; pablo.gonzalez@iit.upcomillas.es

Session 6 - Chair: Andrej Jokic

Time: Tuesday, 28/May/2013: 2:00pm - 3:30pm · Location: Q33

S6:1 Using market schedules to improve secondary control design

Ana Virag¹, **Andrej Jokic**², **Paul P.J. van den Bosch**¹, **Paul P.M.J. Van den Hof**¹

¹Technical University Eindhoven, Netherlands, The; ²University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture; a.virag@tue.nl

S6:2 Evolution of the Continuity of Supply in the Portuguese Distribution Network and Comparison with other European Countries

Sergio Faias^{1,2,3}, **Jorge Esteves**¹

¹ERSE- Entidade Reguladora dos Serviços Energéticos, Portugal; ²ISEL - Lisbon Engineering Superior Institute, Portugal; ³Cie3 - Center for Innovation in Electrical and Energy Engineering, Portugal; sfaias@erse.pt

S6:3 A Multicriteria Approach for Meter Placement in Distribution Systems

Rafael G. Milbradt¹, **Luciane N. Canha**¹, **Pedro B. Zorrilla**¹, **Alzenira R. Abaide**¹, **Paulo R. Pereira**², **Sandro M. Schmaedecke**²

¹Federal University of Santa Maria, Brazil; ²Electric State Company of Rio Grande do Sul, Brazil; rmilbradt@gmail.com

S6:4 Incentive from network regulation for distribution system operators to integrate distributed generation: the Portuguese case.

Angela Picciariello, **Karin Alvehag**, **Lennart Söder**

KTH, Sweden; angela.picciariello@ee.kth.se

S6:5 Comparison of the approaches to network consideration in market clearing: test case EU-FP7ADDRESS

Marija Zima-Bockarjova, **Gregory Ledva**

ABB Corporate Research, Switzerland; marija.zima@ch.abb.com

Session 7 - Chair: Władysław Mielczarski

Time: Tuesday, 28/May/2013: 2:00pm - 3:30pm · Location: Q34

S7:1 Fukushima Effect on Commodity Prices

Angelica Gianfreda¹, Giacomo Scandolo²

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S7:2 Market fallout from the Japanese Earthquake

Luigi Grossi¹, Michael Waterson²

¹University of Verona, Italy; ²University of Warwick, UK; luigi.grossi@univr.it

S7:3 Electricity supply security in Kosovo in a short, medium and long-term perspective

Nysret Zenun Avdiu

Energy Regulatory Office, Kosovo; nysretavdiu@uni-pr.edu

S7:4 Model Predictive Control of a Large Fleet of Thermal Loads and Electric Power Generators, with an Assessment for the Netherlands

Gregory Ledva¹, Robin Vujanic¹, Jasper Frunt², Sébastien Mariéthoz¹, Manfred Morari¹

¹ETHZ, Switzerland; ²DNV KEMA, The Netherlands; vujanic@control.ee.ethz.ch

S7:5 Solar buildings in Austria: Methodology to assess the potential for optimal PV deployment

Marianne Zeyringer¹, Dieter Mayr², Johannes Schmidt², Erwin Schmid², Sofia Simoes¹, Ernst Worrell³, Jon Lind⁴

¹EC- Joint Research Centre- Institute for Energy and Transport, Netherlands, The; ²Institute for Sustainable Economic Development- University of Natural Resources and Life Sciences, Austria; ³Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands;

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Session 8 - Chair: Stein-Erik Fleten

Time: Tuesday, 28/May/2013: 2:00pm - 3:30pm · Location: Q36

S8:1 Structural Breaks in Certificate Markets. Do multi-national markets decrease certificate price volatility?

Riccardo Fagiani, Rudi Hakvoort

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S8:2 Stochastic optimization models for the power generation capacity expansion problem with risk management.

Maria Teresa Vespucci¹, Stefano Zigrino¹, Marida Bertocchi¹, Laureano F. Escudero²

¹University of Bergamo, Italy; ²University Rey Juan Carlos; maria-teresa.vespucci@unibg.it

S8:3 Independent Metering Operators – role, functions and place in the metering market structure

Przemysław Stangierski, Mariusz Przybylik, Krzysztof Jedziniak, Marcin Moczyróg, Marta Szostak

A.T. Kearney, Poland; krzysztof.jedziniak@atkearney.com

S8:4 Optimal pricing behavior of vertically integrated utilities: theory and evidence from the Italian electricity wholesale market.

Bruno Bosco, Lucia Parisio, Matteo Pelagatti

University of Milan-Bicocca, Italy; lucia.parisio@unimib.it

S8:5 A pumped storage hydro unit operation with increasing degrees of market power: Standalone Vs Portfolio integration

Fábio Teixeira¹, Jorge Sousa^{1,2}, Sérgio Faias^{1,2}

¹ISEL - Lisbon Engineering Superior Institute; ²Cie3 - Center for Innovation in Electrical and Energy Engineering; jsousa@deea.isel.ipl.pt

Session 9 - Chair: Juan Rosellon

Time: Wednesday, 29/May/2013: 11:30am - 1:00pm · Location: Q36

S9:1 Procurement of control reserves in self-scheduling markets using stochastic programming approach: Swiss case

Farzaneh Abbaspourtorbati¹, Marek Zima²

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S9:2 Capacity Based Grid Fees for Residential Customers

Johannes Jargstorf^{1,3}, Kris Kessels^{2,3}, Ronnie Belmans^{1,3}

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S9:3 PEV Fleet Scheduling with Electricity Market and Grid Signals: Capacity Demand Charges Based on DSO's Long Run Marginal Cost

Ilan Momber¹, Tomás Gómez², Lennart Söder³

¹SETS Joint Doctorate, Europe; ²CNE, Spain; ³KTH, Sweden; omber@kth.se

S9:4 Are cross-border electricity transmission and pumped hydro storage complementary technologies?

Carlo Brancucci Martínez-Anido^{1,2}, Laurens de Vries²

¹European Commission, Joint Research Centre, Institute for Energy and Transport, Netherlands, The; ²Delft University of Technology, Faculty of Technology, Policy and Transport;

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S9:5 Calculation of adequacy indices for interconnected Spanish electric systems in presence of RES, hydro and pump units

R López¹, J Revuelta², I Cobo³

¹REE, Spain; ²INSEAD Student, Singapore; ³ICAI, Spain; rlopezsanz@ree.es

Session 10 - Chair: Luigi Grossi

Time: Wednesday, 29/May/2013: 11:30am - 1:00pm · Location: Q31

S10:1 Forecasting of daily electricity spot prices by incorporating intra-day relationships: Evidence from the UK power market

Katarzyna Maciejowska, Rafał Weron

Wrocław University of Technology, Poland; katarzyna.maciejowska@pwr.wroc.pl

S10:2 Modeling the Strategic Behaviour of the Iberian Electricity Market Producers using Time Series Analysis

Ricardo Faria¹, Jorge Sousa^{1,2}, Ana Martins^{1,3}, João Lagarto^{1,2,4}

¹ISEL - Lisbon Superior Engineering Institute, Portugal; ²Cie3 - Center for Innovation in Electrical and Energy Engineering; ³BRU-UNIDE; ⁴MIT Portugal Program in Sustainable Energy Systems, Technical Superior Institute (IST); jlagarto@deea.isel.ipl.pt

S10:3 A Seasonal ARIMA Model With Exogenous Variables (SARIMAX) for Elspot Electricity Price Prediction in the Bidding Area of Sweden

Mengchen Xie¹, Claes Sandels², Kun Zhu², Lars Nordström²

¹University of Southern California, United States of America; ²Royal Institute of Technology, Sweden; mengchenxie@gmail.com

S10:4 A resampling particle filter joint parameter estimation for electricity prices with jump diffusion

Bahri Uzunoglu¹, Dervis Bayazit²

¹Uppsala University Gotland Campus, Sweden; ²Federal Home Loan Bank of Atlanta, USA; bahri.uzunoglu@hgo.se

S10:5 Spikes, Antispikes and Thresholds in Electricity Logprices

Carlo Lucheroni

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Session 11 - Chair: Stein-Erik Fleten

Time: Wednesday, 29/May/2013: 11:30am - 1:00pm · Location: Q33

S11:1 Mutually Beneficial? Germany's Energy Transition and the Internal Electricity Market

Thomas Sattich

Stiftung Wissenschaft und Politik, Belgium; thomas.sattich@swp-berlin.org

S11:2 Flow-based Capacity Calculation Method Used in Electricity Market Coupling

Peter Sores, Daniel Divenyi, David Raisz

Budapest University of Technology and Economics, Hungary; sores.peter@gmail.com

S11:3 Participation of electric heat pump resources in a day-ahead energy market under uncertainty

Nicholas Good¹, Alejandro Navarro-Espinosa¹, Efthymios Karangelos², Pierluigi Mancarella¹

¹University of Manchester, United Kingdom; ²University of Liege, Belgium; nicholas.good@manchester.ac.uk

S11:4 New subsidies for renewables

Władysław Mielczarski

Technical University of Lodz, Poland; w.mielczarski@neostrada.pl

S11:5 Congestion Management by Dispatch or Re-dispatch: Flexibility Costs and Market Power Effects

Linda Rud^{1,2}, Endre Bjørndal^{1,2}, Mette Bjørndal^{1,2}

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Session 12 - Chair: Pascal da Costa

Time: Wednesday, 29/May/2013: 11:30am - 1:00pm · Location: Q34

S12:1 European Energy Regulation: a Survey Analysis across Electricity segments

Francesca Pia Vantaggiato¹, Angelica Gianfreda²

¹EUI - RSCAS - FSR, Italy; ²London Business School; agianfreda@london.edu

S12:2 Historical approach of European market. How does electricity investment decision evolve with historical context?

Bianka SHOAI TEHRANI¹, Danièle ATTIAS², Jean-Guy DEVEZEAUX DE LAVERGNE¹

¹CEA Saclay, France; ²Ecole Centrale Paris, France; bianka.shoai-tehrani@cea.fr

S12:3 Merchant and Regulated Transmission Investment: The Case of the Baltic Sea Region

Clemens Gerbaulet, Casimir Lorenz, Alexander Weber

TU Berlin, Germany; aw@wip.tu-berlin.de

S12:4 Does regulatory independence translate into a higher degree of liberalization? - Evidence from EU energy regulators

Henrik Lindemann

University of Hannover, Germany; lindemann@sopo.uni-hannover.de

S12:5 Spanish Coal Royal Decree: An Energy Security Measure

Cristian A. Diaz¹, Mort Webster², Jose Villar¹, Fco. Alberto Campos¹, Pablo Gonzalez¹

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S12:6 A Formulation for Large-Scale Transmission Expansion Planning Problem and Solution Strategies

Desta Zahlay F.^{1,2}, F. de Cuadra², I. J. Perez-Arriaga², M. Rivier², L. Olmos²

¹Royal Institute of Technology, Sweden; ²Institute of Technology Research (IIT), Comillas University, Spain; fitiwi@kth.se

Session 13 - Chair: Andrej Jokic

Time: Wednesday, 29/May/2013: 2:00pm - 3:30pm · Location: Q31

S13:1 Strategic bidding of ancillary services for a hydro power producer

Hubert Abgottspon, Göran Andersson

ETH Zurich, Switzerland; abgottspon@eeh.ee.ethz.ch

S13:2 Double-Sided Ancillary Services Markets: Design and Optimal Bidding Strategies

Laura Puglia¹, Ana Virag², Andrej Jokic³, Alberto Bemporad¹

¹IMT Alti Studi di Lucca, Italy; ²TU/e Eindhoven; ³University of Zagreb;

laura.puglia85@gmail.com

S13:3 The degree of rationality in actual bidding of hydropower at Nord Pool

Erik Nicholas Alnæs¹, Roger Grøndahl¹, Trine Krogh Boomsma²,

Stein-Erik Fleten¹

¹Norwegian University of Science and Technology, Norway; ²University of Copenhagen;

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S13:4 Optimization of the bidding curve in reserve markets

Francisco Alberto Campos¹, Antonio Muñoz¹, Eugenio Francisco Sánchez-Úbeda¹, José Portela¹, Rafael González², Jorge Rodríguez², Avelino González²

¹Universidad Pontificia Comillas, Spain; ²Endesa, Spain; acampos@upcomillas.es

S13:5 Demand Response for ancillary services via multi-agent contract design

Tobias W. Haring, Johanna L. Mathieu, Göran Andersson

ETH Zürich, Switzerland; tharing@eeh.ee.ethz.ch

Session 14 - Chair: Władysław Mielczarski

Time: Wednesday, 29/May/2013: 2:00pm - 3:30pm · Location: Q33

S14:1 Designing Financial Transmission Rights to Facilitate Hedging in Wholesale Electricity Markets

Darryl Biggar¹, Mohammad Hesamzadeh²

¹Australian Competition and Consumer Commission, Australia; ²Royal Institute of Technology (KTH), Sweden; darryl.biggar@stanfordalumni.org

S14:2 Support mechanisms and risk: implications on the Nordic electricity system

Lena Kitzing¹, Hans Ravn²

¹Technical University of Denmark (DTU), Denmark; ²RAM-løse; lkit@dtu.dk

S14:3 Minimizing Market Risk by Trading Hydro-Wind Portfolio: A Complementarity Approach

Dorel Soares Ramos, Luiz Armando Steinle Camargo, Ewerton Guarnier, Lucas Torres Witzler

Universidade de São Paulo, Brazil; lascamargo@yahoo.com.br

S14:4 An Integrated Approach to Congestion Management for European Energy Markets

Kwok W. Cheung, Eric Goutard, Sami Ammari

Alstom Grid; kwok.cheung@alstom.com

Session 15 - Chair: Angelica Gianfreda

Time: Wednesday, 29/May/2013: 2:00pm - 3:30pm · Location: Q34

S15:1 The Cost of Abating CO2 Emissions by Renewable Energy Incentives in Germany

Claudio Marcantonini, Denny Ellerman

European University Institute, Italy; claudio.marcantonini@eui.eu

S15:2 Weak EU ETS with strong RES obligation compromises long-term CO2 mitigation

Sanna Syri, Sam Cross

Aalto University, Finland; sanna.syri@aalto.fi

S15:3 The Economics of the CO2 Emission and Mitigation Modeling: A Study for China, USA and France in the Period 2010-2050

Wenhui TIAN, Pascal DA COSTA

Ecole Centrale Paris, France; wenhui.tian@ecp.fr

S15:4 Dynamic interactions of renewable and carbon policies on power generation investments

Joern Constantin Richstein, Riccardo Fagiani, Laurens de Vries

Delft University of Technology, The Netherlands; j.c.richstein@tudelft.nl

S15:5 Optimization of the Operation of Hydro Stations in Market Environment Using Genetic Algorithms

Gil Silva Sampaio¹, João Tomé Saraiva¹, José Carlos Sousa², Virgílio Mendes²

¹Univ. Porto & INESC TEC, Porto, Portugal; ²EDP Produção SA, Portugal; jose.sousa@edp.pt

Session 16 - Chair: Robin Vujanic

Time: Thursday, 30/May/2013: 11:30am - 1:00pm · Location: Q31

S16:1 Power flow control and its effect on flow based transmission cost allocation

Muhajir Tadesse Mekonnen, Dirk Van Hertem, Barry Rawn, Ronnie Belmans, Cedric De Jonghe

KU Leuven, Belgium; muhajir.mekonnen@esat.kuleuven.be

S16:2 Turkey - Romania Subsea Transmission Cable Investment: Time for Reconsideration?

Burak Guler¹, Emre Celebi², David Fuller¹, Jatin Nathwani¹

¹University of Waterloo, Canada; ²Kadir Has University, Turkey; bguler@uwaterloo.ca

S16:3 Towards Optimal Regulation of Transmission Network Investment under Renewable Integration

Jonas Egerer¹, Juan Rosellon², Wolf-Peter Schill³

¹TU Berlin; DIW Berlin; ²CIDE, Mexico; DIW Berlin, Germany; ³DIW Berlin;

juan.rosellon@cide.edu

S16:4 European Electricity Grid Infrastructure Expansion in a 2050 Context

Clemens Gerbaulet, Casimir Lorenz, Jonas Egerer

TU Berlin, Germany; cfg@wip.tu-berlin.de

S16:5 Flow-Based Market Coupling and Price Zone Delineation: Prerequisites for an Efficient Capacity Allocation in a Zonal System

Pieter Schavemaker, René Beune

E-Bridge Consulting B.V., Netherlands, The; pschavemaker@e-bridge.com

Session 17 - Chair: Yannick Perez

Time: Thursday, 30/May/2013: 11:30am - 1:00pm · *Location:* Q33

S17:1 Short-term demand response of flexible electric heating systems: the need for integrated simulations

Kenneth Bruninx, Dieter Patteeuw, Erik Delarue, Lieve Helsen, William D'haeseleer

KU Leuven, Belgium; kenneth.bruninx@mech.kuleuven.be

S17:2 Policies for Effective Electricity Market Design Supporting Demand Side Response: An International Comparison

Elta Koliou, Cherrelle Eid, R.A. Hakvoort

TU Delft; e.koliou@tudelft.nl

S17:3 The Collaboration Perspective Analysis of Smart Grid and Demand Response

Qin Zhang

State Grid Energy Research Institute, China, People's Republic of; zqfalcon@gmail.com

S17:4 Residential Demand Response Program Design: Engineering and Economic Perspectives

Johanna L. Mathieu¹, Tobias Haring¹, John O. Ledyard², Göran Andersson¹

¹ETH Zurich, Switzerland; ²Humanities and Social Sciences, California Institute of Technology; jmathieu@eeh.ee.ethz.ch

Session 18 - Chair: Gianluigi Migliavacca

Time: Thursday, 30/May/2013: 11:30am - 1:00pm · *Location:* Q34

S18:1 Pricing Irish power futures – A comparative analysis of forward curves in European energy markets

Moya Marieta Enright

Dublin City University (DCU), Ireland; moya.enright@gmail.com

S18:2 Tail events: A New Approach to Understanding Extreme Energy Commodity Prices

Nicolas Timon Koch

University of Hamburg, Germany; nicolas.koch@wiso.uni-hamburg.de

S18:3 The Interdependency of Electricity and natural gas markets: Coupling of models

Maria Gil Medina, Pablo Dueñas, Javier Reneses

Institute for Research in Technology (IIT), Advanced Technical Engineering School (ICAI), Comillas Pontifical University; maria.gil@iit.upcomillas.es

S18:4 PV COMPETITIVENESS AND PV SUPPORT SCHEMES – ECONOMIC EFFECTS OF RENT SEEKING

Georg Lettner

Vienna University of Technology, Austria; lettner@eeg.tuwien.ac.at

Session 19 - Chair: Mohammad R. Hesamzadeh

Time: Thursday, 30/May/2013: 11:30am - 1:00pm · *Location:* Q36

S19:1 The shape matters! How structural changes in the electricity load curve affect optimal investments in generation capacity

Tobias Boßmann, Benjamin Pfluger, Martin Wietschel

Fraunhofer ISI, Germany; tobias.bossmann@isi.fraunhofer.de

S19:2 Financing investment in new electricity generation capacity: Impact of the implementation of a German capacity market on the North- West Europe

Ozge Ozdemir, Jeroen de Joode, Paul Koutstaal, Marit van Hout

Energy Research Center of the Netherlands, Netherlands, The; ozdemir@ecm.nl

S19:3 3 Investment Scenarios for Generation IV Nuclear Reactors

Bianka SHOAI TEHRANI¹, Pascal DA COSTA²

¹CEA Saclay, France; ²Ecole Centrale Paris, France; bianka.shoai-tehrani@cea.fr

S19:4 Load-Shifting Potentials in Households including Electric Mobility – a Comparison of User Behaviour with Modelling Results

Alexandra-Gwyn Paetz, Thomas Kaschub, Patrick Jochem, Wolf Fichtner

Karlsruhe Institute of Technology, Germany; paetz@kit.edu

S19:5 Multi-national Transmission Planning Using Joint and Disjoint Solutions

Yaser Tohidi, Mohammad Reza Hesamzadeh

Royal Institute of Technology, Sweden; yaser.tohidi@ee.kth.se

Session 20 - Chair: Stein-Erik Fleten

Time: Thursday, 30/May/2013: 2:00pm - 3:30pm · *Location:* Q31

S20:1 Electricity price evolution in the UK and Spain: A comparative analysis

Manoela Martinez-Castor de Cerqueira, Saturnino Catalan-Izquierdo, Cesar

Cañas-Peñuelas, Jose Manuel Bueno-Barrachina

Universitat Politècnica de Valencia, Spain; mamarc16@upv.es

S20:2 Dynamic electricity markets – The peak-load pricing model as a control theoretic problem

Jessica Raasch, Christoph Weber

University Duisburg-Essen, Germany; jessica.raasch@ibes.uni-due.de

S20:3 Flat-rate pricing for grid usage in distribution grids

Bjoern Illing

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S20:4 Area Price Spreads in the Nordic Electricity Market: The Role of Cross-border Transmission Lines and Electricity Import Dependency

Petr Spodniak, Satu Viljainen, Ari Jantunen, Mari Makkonen

Lappeenranta University of Technology, Finland; petr.spodniak@lut.fi

S20:5 Panel modelling of electricity prices: linear and nonlinear regression approaches

Carlo Lucheroni, Renato De Leone

Università di Camerino, Italy; carlo.lucheroni@unicam.it

Session 21 - Chair: Angelica Gianfreda

Time: Thursday, 30/May/2013: 2:00pm - 3:30pm · *Location:* Q33

S21:1 Vehicle-to-grid in France: which revenues for participation to the frequency regulation?

Marc Petit¹, Yannick Perez²

¹Supélec, France; ²Univ- Paris-Sud 11 Supélec, France; yannick.perez@u-psud.fr

S21:2 Impact of Electricity Vehicles on the Electricity Prices and on the Load Curves of the Iberian Electricity Market

Ricardo Loureiro Gonçalves¹, João Tomé Saraiva¹, José Carlos Sousa², Virgílio Mendes²

¹Univ. Porto & INESC TEC, Porto, Portugal; ²EDP Produção SA, Portugal; ricardo.nl.goncalves@gmail.com

S21:3 Stochastic Programming Based Model of An Electricity Retailer Considering Uncertainty Associated with Electric Vehicles Charging

Pavan Balram, Tuan Anh Le, Lina Bertling Tjernberg

Chalmers University of Technology, Sweden; pavan.balram@chalmers.se

S21:4 Optimal Bidding Strategy of a Plug-in Electric Vehicle Aggregator in Day-ahead Electricity Markets

Marina González Vayá, Göran Andersson

ETH Zurich, Switzerland; gonzalez@eeh.ee.ethz.ch

S21:5 Cost-benefit analysis of plug-in electric vehicles penetration

José Villar, Cristian Díaz, Pablo González, Ignacio Trigo

Universidad Pontificia Comillas, Spain; jose.villar@iit.upcomillas.es

Session 22 - Chair: Darryl Biggar

Time: Thursday, 30/May/2013: 2:00pm - 3:30pm · *Location:* Q34

S22:1 Feasibility of employing domestic active demand for balancing wind power generation

Kris Kessels^{1,3}, Daan Six^{1,3}, Muhajir T. Mekonnen^{2,3}, Benjamin Dupont^{2,3}

¹VITO, Belgium; ²KULeuven, Belgium; ³Energyville, Belgium; kris.kessels@vito.be

S22:2 A Robust Hydro-thermal Scheduling Problem for a System Integrated with Wind Resource

Yuanhao Yang, Qiaozhu Zhai, Xiaohong Guan

Xi'an Jiaotong University, China, People's Republic of; ygyang1985@gmail.com

S22:3 Optimal Renewable Generation Mix of Hydro, Wind and Photovoltaic for Integration into the Portuguese Power System

Jorge Sousa^{1,2}, Ana Martins^{1,3}

¹ISEL - Lisbon Engineering Superior Institute; ²Cie3; ³BRU-UNIDE; jsousa@deea.isel.ipl.pt

S22:4 Optimal location of fast charging stations in Barcelona: A Flow-Refueling Approach

Miguel Cruz-Zambrano¹, Valeria Bernardo², Christina Corchero³,

Lucia Igualada¹

¹Catalonia Institute for Energy Research, Spain; ²Universitat de Barcelona; ³Universitat Politècnica de Catalunya; mcruz@irec.cat

S22:5 EXPLORING THE FACTORS AFFECTING CLEAN DEVELOPMENT MECHANISM (CDM) IN DEVELOPING COUNTRIES

Pendo Kiviyiro

Lappeenranta University of Technology, Finland; pendo.kiviyiro@lut.fi

Session 23 - Chair: Jorge Sousa

Time: Thursday, 30/May/2013: 2:00pm - 3:30pm · Location: Q36

S23:1 Participation of wind power on the European balancing markets

José Pablo Chaves Ávila, Rudi Hakvoort

Delft University of Technology, Netherlands; j.p.chavesavilla@tudelft.nl

S23:2 The impact of location on competitiveness of wind and PV power plants - case study for Austria

Sofia Simoes¹, Huld Thomas³, Mayr Dieter², Schmidt Johannes², Zeyringer Marianne^{1,2,4}

¹EC- Joint Research Centre- Institute for Energy and Transport, Netherlands, The; ²Institute for Sustainable Economic Development, University of Natural Resources and Life Sciences, Austria; ³EC- Joint Research Centre- Institute for Energy and Transport, Ispra, Italy; ⁴Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands; sofia.simoes@ec.europa.eu

S23:3 Unit Commitment in fully Renewable, Hydro-Wind Energy Systems

MUSTAFA PEZIC, VANESA MORAY CEDRES

RED ELECTRICA DE ESPAÑA - REE, Spain; MPEZIC@REE.ES

S23:4 A Dynamic Factor Model for Mid-term Forecasting of Wind Power Generation

Carolina García-Martos, María Jesús Sánchez

Technical University of Madrid, UPM, Spain; Garcia.martos@upm.es

S23:5 How to Increase Wind Energy Targets with the Integration of Electric Vehicles into the Grid: An application to the Portuguese Case

Ezequiel Francisco Carvalho¹, Jorge Sousa^{1,3}, M. Ventim Neves²

¹ISEL- Lisbon Engineering Superior Institute, Portugal; ²FCT/UNL - Faculty of Science and Technology, Portugal; ³Cie3 - Center for Innovation in Electrical and Energy Engineering, Portugal; ecarvalho@deea.isel.ipl.pt

Session 24 - Chair: Gianluigi Migliavacca

Time: Friday, 31/May/2013: 9:30am - 11:00am · Location: Q31

S24:1 Expansion Planning of Electric Power Distribution Systems under the Paradigm of Price Cap Regulation

Moisés Machado Santos¹, Alzenira da R. Abaide¹, Julian Cezar Giacomini², Nelson Knak Neto¹

¹Federal University of Santa Maria; ²Regional University of Northwest Rio Grande do Sul; nelsonknakneto.eng@gmail.com

S24:2 Modeling of Dynamic Procurement Auction of Long term supply contracts in Colombia's Electricity Market

Henry Camilo Torres Valderrama, Luis Eduardo Gallego Vega, Manuel Alejandro Poveda Nuñez

Universidad Nacional de Colombia, Colombia; mapovedan@unal.edu.co

S24:3 Electricity Market Equilibrium Models with Dynamic Demand

Emre Celebi

Kadir Has University; ecelebi@khas.edu.tr

S24:4 Electricity Spot Prices Structural Changes in the Iberian Electricity Market

João Bolas¹, Jorge Sousa^{1,2}, Ana Martins^{1,3}, João Lagarto^{1,2,4}

¹ISEL - Lisbon Superior Engineering Institute, Portugal; ²Cie3 - Center for Innovation in Electrical and Energy Engineering; ³BRU-UNIDE; ⁴MIT Portugal Program in Sustainable Energy Systems, Technical Superior Institute (IST); jlagarto@deea.isel.ipl.pt

S24:5 Bilateral Contracts in Electricity Markets

Fernando Lopes¹, Hugo Algarvio², Helder Coelho³

¹LNEG, Portugal; ²LNEG, Portugal; ³University of Lisbon, Portugal; fernando.lopes@lneg.pt

Session 25 - Chair: Lennart Söder

Time: Friday, 31/May/2013: 9:30am - 11:00am · Location: Q33

S25:1 Modeling and forecasting of the long-term seasonal component of the EEX and Nord Pool spot prices

Jakub Nowotarski, Jakub Tomczyk, Rafał Weron

Wrocław University of Technology, Poland; jakub.nowotarski@gmail.com

S25:2 Time-sequence reserve products for electricity markets

Joseph Warrington, Sébastien Mariéthoz, Manfred Morari

Swiss Federal Institute of Technology (ETH) Zurich, Switzerland; warrington@control.ee.ethz.ch

S25:3 Wearing Out The Regulator: Industry Response to Non-Credible High-Powered Regulatory Regimes

Per Agrell¹, Emili Grifell-Tatje²

¹Université Catholique de Louvain, Belgium; ²Universitat Autònoma de Barcelona, Sweden; per.agrell@uclouvain.be

S25:4 Demand side management in an integrated electricity market: which impact on generation and environmental concerns?

Claire Bergaentzlé, Cédric Clastres

EDDEN-LEPI CNRS, France; claire.bergaentzle@upmf-grenoble.fr

S25:5 Systemic Genetic Algorithms for the Design Development of the Electricity Market

Jerzy Rudolf Tachorzewski

Siedlce University of Natural Sciences and Humanities, Poland; jtachorzewski@interia.pl

Session 26 - Chair: Darryl Biggar

Time: Friday, 31/May/2013: 9:30am - 11:00am · Location: Q34

S26:1 A real options assessment of operational flexibility in district energy systems

Yerkin Kitapbayev¹, Pierluigi Mancarella¹, John Moriarty¹, Max Blochle²

¹The University of Manchester, United Kingdom; ²AIT Austrian Institute of Technology GmbH; yerkin.kitapbayev@postgrad.manchester.ac.uk

S26:2 Derivative regulation and its impact on energy and utility firms: A comparison of the EU and US new regulatory frameworks

Anastassios Gentzoglani

Université de Sherbrooke Québec, Canada; agentzoglani@gmail.com

S26:3 Measuring Energy Security

Christian Winzer

EPRG, University of Cambridge, UK; c.b.winzer@gmail.com

S26:4 Robustness of various capacity mechanisms to regulatory errors

Christian Winzer

EPRG, University of Cambridge, UK; c.b.winzer@gmail.com

Session 27 - Chair: Mohammad R. Hesamzadeh

Time: Friday, 31/May/2013: 9:30am - 11:00am · Location: Q36

S27:1 The Impact of Renewables on Cycling of Conventional Power Plants

Kenneth Van den Bergh, Erik Delarue, William D'haeseleer

University of Leuven (KU Leuven), Belgium; kenneth.vandenbergh@mech.kuleuven.be

S27:2 Control Power Demand and Variable Renewables: A Glimpse at German Data

Lion Hirth^{1,2}, Inka Ziegenhagen^{1,3}

¹Vattenfall GmbH, Germany; ²Potsdam-Institute for Climate Impact Research, Germany;

³University of Leipzig, Germany; lion.hirth@vattenfall.com

S27:3 Impacts of volatile and uncertain renewable energy sources on the German electricity system

Michael Zipf, Domink Möst

Dresden University of Technology, Germany; Michael.Zipf@tu-dresden.de

S27:4 Verification of a model for handling of pumped storage for large scale balancing of new renewables

Geir Warland, Birger Mo, Arne Haugstad

SINTEF Energy Research, Norway; geir.warland@sintef.no

S27:5 Impact of Energy Storage Devices on Energy Price in Decentralized Wind-Diesel Utilities

Ekaterina Moiseeva¹, Mohammad Hesamzadeh²

¹KTH Royal Institute of Technology, Sweden; ²KTH Royal Institute of Technology, Sweden;

moiseeva@kth.se

Session 28 - Chair: Lennart Söder

Time: Friday, 31/May/2013: 11:30am - 13:00pm · Location: Q31

S28:1 Expectation based reserve capacity dimensioning in power systems with an increasing intermittent feed-in

Christopher Breuer², Christian Engelhardt¹, Albert Moser³

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²RWTH Aachen University, Germany; ³Institute of Power Systems and Power Economics

(IAEW), RWTH Aachen University, Germany; christian.engelhardt@rwth-aachen.de

S28:2 The effect of German strategic reserves on the central European electricity market

Pradyumna C. Bhagwat¹, Laurens J. de Vries²

¹Delft University of Technology, The Netherlands; ²Delft University of Technology, The Netherlands;

P.C.Bhagwat@tudelft.nl

S28:3 Analysis of the market conditions for storage in the German day-ahead and secondary reserve market

Thiemo Pesch, Peter Stenzel

Forschungszentrum Jülich, Germany; t.pesch@fz-juelich.de

S28:4 Multi-market unit-commitment and capacity reserve prices in systems with a large share of hydro power: a case study

André Ortner¹, Christoph Graf²

¹Technical University of Vienna, Austria; ²University of Vienna, Austria;

christoph.graf@univie.ac.at

S28:5 Bilateral Contracts and Demand Response in Multi-Agent Electricity Markets

Fernando Lopes¹, Cristina Ilco², Jorge Sousa²

¹LNEG, Portugal; ²ISEL, Portugal; fernando.lopes@lneg.pt

Session 29 - Chair: Darryl Biggar

Time: Friday, 31/May/2013: 11:30am - 13:00pm · Location: Q33

S29:1 Enhancing the Direct Sales of Intermittent Renewable Electricity Production: Efficiency Considerations of a German Market Rule

Luisa Dressler

Université libre de Bruxelles (SBS-EM) and ECARES; luisa.dressler@ulb.ac.be

S29:2 Progress in development of Renewable Electricity in Northern Europe in context of the EU 2020 Renewables target

Sam Cross¹, Aira Hast¹, Sanna Syri¹, Reeli Kuhi-Thalfeldt², Juhan Valtin²

¹Aalto University, Finland; ²Tallinn University of Technology; samuel.cross@aalto.fi

S29:3 COMPETITION PERSPECTIVE OF ELECTRICITY SECTOR REFORMS - An Overview of Electricity Sector Reforms

Manuel Coxe

Solvay Brussels School of Economics and Management, Belgium; manuel.coxe@europex.org

S29:4 Networked Business Model for Feasibility Analysis of Dynamic Electricity Pricing

Hanspeter Höschle, Benjamin Dupont, Pieter Vingerhoets, Ronnie Belmans

KU Leuven, Belgium; hanspeter.hoschle@esat.kuleuven.be

S29:5 Asymmetry of Information and Demand Incentives in Energy Markets

Ariana Isabel Ramos Gutierrez^{1,2,3}, Cedric De Jonghe², Daan Six^{1,3}, Ronnie Belmans²

¹Flemish Institute for Technological Research; ²KU Leuven; ³Energyville;

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Session 30 - Chair: Mohammad R. Hesamzadeh

Time: Friday, 31/May/2013: 11:30am - 13:00pm · Location: Q34

S30:1 Deriving the Optimal Number of Clusters in the Electricity Consumer Segmentation Procedure

Ioannis Panapakidis, Minas Alexiadis, Grigoris Papagiannis

Aristotle University of Thessaloniki, Greece; ipanap@ee.auth.gr

S30:2 Improvements in the Clustering Validity Indexes of the Load Profiling Methodology

Ioannis Panapakidis¹, Athanasios Dagoumas², Minas Alexiadis¹, Grigoris Papagiannis¹

¹Aristotle University of Thessaloniki, Greece; ²Power Exchange Division, Electricity Market Operator S.A. (LAGIE), Greece; ipanap@ee.auth.gr

S30:3 Impact of different balancing zones on the capacity market design in Europe towards 2050

Zongyu Liu¹, Lou van der Sluis¹, Liang Tao², Enrique Gaxiola², Christine Schwaegerl², Christos Vasilakos Konstantinidis³

¹Delft University of Technology, the Netherlands; ²Siemens AG, Germany; ³Imperial College London, UK; zongyu.liu@tudelft.nl

Investment and Trading in Electricity Markets with ITEM-Game competition

EEM13 Special Session

Stockholm | May 2013

Outline

The investment decisions in power generation technologies, the trading of electricity in organized markets and the price and volume risk management are critical aspects in liberalized electricity markets, namely for power generation companies.

The special session on **Investment and Trading in Electricity Markets (ITEM)** gives the participants the opportunity to understand the main features of the liberalized electricity markets and the challenges faced by market participants in their long-term investment decisions and in their short-term trading strategies. The ITEM session is focused on the technical and economical aspects of power generation (e.g. operational issues; investment, fuel and emissions costs) and the trading strategies of market players in electricity markets.

Participants will apply the investment and trading concepts in a hands-on approach using the ITEM-Game (www.item-game.org), an interactive simulation platform where each team (group of 2-3 participants) represent a profit maximizing power company that make decisions about the investments in power generation (nuclear, coal, CCGT, hydro, wind, solar) and the trading of its generation in a power pool (in blocks of power and price).

The session is organized as follows:

- Main concepts of investment in power generation technologies and trading power in organized electricity markets
- Team formation and setting up the ITEM-Game (one laptop for each team is required)
- ITEM-Game competition with 10 interactive rounds of investment and trading
- Discussion of the ITEM-Game competition results and analysis of the winning strategies

Lecturer

Jorge Sousa holds a PhD in Economics (Energy Markets), from the New University at Lisbon, a Master degree and Graduation in Electrical Engineering and Computer Science (Power Systems), from the Technical University of Lisbon. He is Professor at ISEL - Lisbon Engineering Superior Institute, head of the Energy Systems Division, researcher at INESC-ID and invited Professor at the New University at Lisbon in the Renewable Energies Master course. Formerly he worked for several energy companies such as the Electricité de France (EdF) and Electricidade de Portugal (EDP) in transmission network. His areas of research include power systems economics, renewable energies, risk management in energy markets, market integration, electricity markets modeling and simulation.

Time	Monday - 27 May 2013
12:00 - 19:00	Registration

Time	Tuesday - 28 May 2013
8:30 - 9:30	Opening Ceremony
9:30 - 10:15	Keynote Speech by Darryl R. Biggar
10:15 - 11:00	Keynote Speech by Frank A. Wolak
11:00 - 11:30	Coffee break
11:30 - 13:00	Session 1 Session 2 Session 3 Session 4
13:00 - 14:00	Lunch break
14:00 - 15:30	Session 5 Session 6 Session 7 Session 8
15:30 - 16:00	Coffee break
16:00 - 18:00	Special Session by Dr. Gianluigi Migliavacca
18:00 - 19:00	Late registration / Information desk

Time	Wednesday - 29 May 2013
9:30 - 10:15	Keynote Speech by Jean-Michel Glachant
10:15 - 11:00	Keynote Speech by Ross Baldick
11:00 - 11:30	Coffee break
11:30 - 13:00	Session 9 Session 10 Session 11 Session 12
13:00 - 14:00	Lunch break
14:00 - 15:30	ITEM session Session 13 Session 14 Session 15
15:30 - 16:00	Coffee break
16:00 - 18:00	Special Session by Dr. Andrej Jokic
18:00 - 19:00	Free time
19:00	Gala Dinner

Time	Thursday - 30 May 2013
9:30 - 10:15	Keynote speech by Lennart Söder
10:15 - 11:00	Keynote Speech by Steven Stoft
11:00 - 11:30	Coffee break
11:30 - 13:00	Session 16 Session 17 Session 18 Session 19
13:00 - 14:00	Lunch break
14:00 - 15:30	Session 20 Session 21 Session 22 Session 23
15:30 - 16:00	Coffee break
16:00 - 18:00	Special Session by Prof. Howells
18:00 - 19:00	Late registration / Information desk

Time	Friday - 31 May 2013
9:00 - 9:30	Presentation by Christer Bäck, Svenska Kraftnät
9:30 - 11:00	Session 24 Session 25 Session 26 Session 27
11:00 - 11:30	Coffee break
11:30 - 13:00	Session 28 Session 29 Session 30
13:00 - 14:30	Lunch break
14:30	Optional tour: Sightseeing boat M/S Delfin.

The conference takes place in the Q-building, Osquldas väg 4, on the main KTH campus. The opening ceremony, keynote speeches and special sessions will all be held in room Q1, and the rooms for the presentation sessions can be found on the information page for each session.

The gala dinner will be held at Historiska Museet, Narvavägen 13-17.

Sightseeing tour with M/S Delfin

M/S Delfin XI is excellent for sightseeing tours and transportation. She was built in 1971 and delivered by Gustafsson & Andersson AB shipyard for Tourist Sightseeing AB in Stockholm, where she used the sightseeing services in Stockholm harbor.

In 1991 the boat was moved to Gothenburg and Börjesson's Excursion boats AB to the name Gothenburg sightseeing drive sightseeing services in Gothenburg.

After five years in Gothenburg she was brought back to Stockholm by Ångfarts AB Stream Channel for sightseeing services and to operate between central Stockholm and Fjäderholmarna. That same year, she received new engines.

In 2008 she was rebuilt at Tenö Laps in Vaxholm and got the rear deck built.



