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3rd AIEE Energy Symposium PROGRAMME



Current and Future Challenges to Energy Security the energy transition

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3rd AIEE Energy Symposium

Current and Future Challenges to Energy Security

10-12 December, Milan - University Bocconi

PROGRAMME

Monday - December 10, 2018

- 16.00-19.00 **Registration**
- 16.30-17.30 **Opening Welcome Address**
- 17.30-19.00 **Welcome Cocktail**

Tuesday - December 11, 2018

- 08.30-17.00 **Registration**
- 08.30-10.00 **Welcome coffee**

09.00-10.30 Concurrent Sessions (1-4)

01 Energy efficiency in buildings

Heat cost allocation: an evaluation of benefits, on the basis of actual operation data
Presenter: Giuseppe Dell'Olio, GSE, Italy
Author: Giuseppe Dell'Olio

An Assessment of Urban Energy Systems Focusing on the Cooling Energy Demand
in Hot Summer Days by an Energy Network Model with 151 Subregions of Tokyo
Koto Area
Presenter: Shunsuke Mori, Tokyo University of Science, Japan
Authors: Shunsuke Mori, Aya Kishimoto and Satoshi Ohnishi

Endogenous energy efficiency improvement of large-scale refurbishment in the
Swiss residential building stock
Presenter: Sergey Arzoyan, École Polytechnique Fédérale de Lausanne (EPFL),
Switzerland
Authors: Sergey Arzoyan, Quirin Oberpriller, Marc Vielle, Michel Zimmermann

Residential solar pv investment: the role of beauty, budget and risk
Presenter: Beatrice Petrovich, University of St.Gallen, Switzerland
Authors: Beatrice Petrovich, Stefano Carattini, Rolf Wüstenhagen

02 The gas market: new perspectives?

Development of LNG markets & its impact on valuation of natural gas resources in
CEE countries
Presenter: Robert Uberman, University of Rijeka, Poland
Authors: Robert Uberman, Saša Ziković

China's gas demand in low carbon transition: implications for the international natural gas markets

Presenter: Silvana Mima, CNRS-GAEL, France

Authors: Silvana Mima, Catherine Locatelli, Olga Garanina

Emergence and Consolidation of a Hybrid Paradigm in the European Gas Market: A Computational Simulation

Presenter: Arnaldo Orlandini, Universidad Complutense de Madrid, Spain

Authors: Arnaldo Orlandini, Meliyara Consuegra

03 The energy-environment nexus

Low-carbon electricity generation scenarios for Tanzania: implications for the country's economy and the environment

Presenter: Elena Fumagalli, Copernicus Institute of Sustainable Development, Utrecht University, Germany

Authors: Elena Fumagalli, Matteo Rocco

Real-time Carbon-emissions and consumer responsibility - a marginal approach for an open economy: The case of the Swiss Electricity Consumption

Presenter: Eliot Romano, University of Geneva, Switzerland

Authors: Eliot Romano, Pierre Holmuller, Martin K. Patel

Evaluation of environmental and economic feasibility of Renewable Energy Systems; A stochastic life cycle assessment and cost analysis approach

Presenter: Maria Milousi, Technical University of Crete, Greece

Authors: Maria Milousi, Manolis Souliotis, Emiliios Galariotis, Spiros Papaefthimiou, Georgia Makridou

Areva, EDF, and the Economic Viability of the Closed Fuel Cycle

Presenter: Ryan Timothy Brown, Duke University/UN Economic Commission for Europe, Sustainable Energy Division, USA

Authors: Ryan Timothy Brown

04 The multiple paths of electricity: new challenges

The value of security for Swiss residential electricity consumers – a discrete choice analysis

Presenter: Alessandra Motz, Università della Svizzera italiana, Switzerland

Author: Alessandra Motz

The measurement of unobserved economy through electricity demand

Presenter: Amedeo Argentiero

Authors: Amedeo Argentiero, Simona Bigerna, Maria Chiara D'Errico, Silvia Micheli, Paolo Polinori

An econometrics analysis of residential energy demand satisfied by heat pumps: lessons from international experience

Presenter: Sophia Kokoni, University of Surrey, UK

Authors: Sophia Kokoni

Market Design of an Energy Exchange: the case of Greece

Presenter: Filippos Ioannidis, Aristotle University of Thessaloniki, Department of Economics, Greece

Authors: Filippos Ioannidis, Kyriaki Kosmidou, Kostas Andriosopoulos

10.30-11.30 PLENARY SESSIONS

**EU towards 2030 and the energy security concerns
Regulatory changes and market developments**

11.30-13.00 Concurrent Sessions (5-8)

05 Innovation for energy systems

Hybrid Energy Solutions: Improving Performance of Energy Systems
Presenter: Magnus Miemois, Wärtsilä Energy Solutions, Finland
Authors: Magnus Miemois

Trends and long-run relations in electricity prices: why prefiltering is inevitable
Presenter: Matteo Pelagatti, DEMS, University of Milan Bicocca, Italy
Authors: Matteo Pelagatti, Angelica Gianfreda and Lucia Parisio

Exploring pathways of solar PV learning in integrated assessment models
Presenter: Samuel Carrara, FEEM/University of California, Berkeley, Italy
Authors: Samuel Carrara, Michela Bevione, Harmen-Sytze de Boer, David Gernaat, Silvana Mima, Robert C. Pietzcker, Massimo Tavoni

Valuing (in) security of electricity supply: A discrete choice experiment for Estonia, the Netherlands and Portugal
Presenter: Sergio Giaccaria, Joint Research Center– European Commission EU
Authors: Sergio Giaccaria, Alberto Longo, Thijs Bouman, Tilemahos Efthimiadis

06 Decarbonizing the gas sector

Towards renewable natural gas
Presenter: Giuseppe Ferrari, Luigi Bocconi Commercial University, Italy
Authors: Giuseppe Ferrari, Iñigo del Guayo

Synthetic Natural Gas: an Option Complementing Renewable Energy and Supporting Decarbonisation?
Presenter: Simon Morgenthaler, Institute of Energy and Climate Research – System Analysis and Technology Evaluation (IEK-STE), Forschungszentrum Jülich GmbH, Germany
Authors: Simon Morgenthaler, Christopher Ball, Wilhelm Kuckshinrichs

Decarbonising the Gas Sector: is Renewable Gas a Serious Option?
Presenter: Andris Piebalgs, Florence School of Regulation, Latvia
Authors: Andris Piebalgs, Maria Olczak

07 Energy security & climate change

RESPONSIBLE BOX: blockchain for climate change awareness
Presenter: Alessio Pinzone, AREA Ridef APS, Italy
Authors: Alessio Pinzone

Big data analysis to seek climate change proof and its risk mitigation
Presenter: Ionut Purica, Romanian Academy and AOSR, Romania
Authors: Ionut Purica

Who is taking climate change seriously? Evidence based on a comparative analysis of the carbon capture and storage (CCS) legal framework in the European Union, Canada, United States, China and Brazil
Presenter: Hirdan Katarina de Medeiros Costa, Energy and Environment Institute of the University of São Paulo - IEE-USP, Brazil
Authors: Hirdan Katarina de Medeiros Costa, Luciano Gualberto, Carolina Arlota

The main results of the G-20 peer review on fossil-fuel subsidies
Presenter: Mario Iannotti, SOGESID/Italian Ministry of Environment, Italy
Author: Mario Iannotti

08 The Electricity market: risks and opportunities

Heading towards sustainable and democratic electricity system
Presenter: Reinhard Haas, Vienna University of Technology, Austria
Authors: Reinhard Haas, Hans Auer

An intra-day analysis of electricity forward premia
Presenter: Kun Li, Beijing Normal University, Cina
Authors: Kun Li

Key Driving Factors of Electricity Price Risk: Evidence from Turkey
Presenter: Volkan Alacam, Energy Market Regulatory Authority, Turkey
Authors: Volkan Alacam, Mustafa Gozen

Electricity futures and stock market response to energy sector material disclosures
Presenter: Ivan Diaz-Rainey, University of Otago, New Zealand
Authors: Ivan Diaz-Rainey, Xing Han, Greg Sise, Sam Aitken

LUNCH BREAK

14.00-15.30 PLENARY SESSIONS

Energy industry challenges to a low-carbon economy

Europe Roadmap and the future strategies of the energy industry

15.30-17.00 Concurrent Sessions (9-12)

09 The energy-economy nexus

Hedging rainfall exposure through hybrid financial instruments
Presenter: Enrico Moretto, University of Insubria Varese, Italy
Authors: Silvana Stefani, Gleda Kutrolli, Enrico Moretto, Adeyemi Sonubi, Vanda Tulli

Development of dynamic scenarios: Depicting path dependencies and nonlinearities within storylines
Presenter: Philip Meyer, TU Bergakademie Freiberg, Germany
Authors: Philip Meyer, Stefan Vögele, Kristina Govorukha, Dirk Rübhelke

Which policies trigger RE investment? A structured literature review from an investor's perspective
Presenter: Egli Florian, ETH Zurich, Switherland
Authors: Friedemann Polzin, Florian Egli, Bjarne Steffen, Tobias S. Schmidt

Financial performance assessment of electricity companies: evidence from Portugal
Presenter: Elisabete Neves, Polytechnic Institute of Coimbra, Portugal
Authors: Elisabete Neves, Carla Henriques, João Vilas

10 The union of national energy markets

Division of powers between the EU and its member states: implications for energy security
Presenter: Martin Svec, Masaryk University, Czech Republic
Authors: Martin Svec

Regulating Energy Markets: The Experience of South Eastern Europe
Presenter: Sotirios Manolkidis, Hellenic Regulatory Authority for Energy (RAE), Grece
Author: Sotirios Manolkidis

Sector Coupling – the new EU Climate & Energy paradigm?
Presenter: Maria Olczak, Florence School of Regulation, Poland
Authors: Maria Olczak, Andris Piebalgs

Competition and Regulation with Smart Grids
Presenter: Marco Buso, University of Padua, Italy
Authors: Marco Buso, Luciano Greco, Marina Bertolini

11 Global assessment of energy security, efficiency and sustainability

Fuel Poverty Measurements in America. Who are the Most Vulnerable?
Presenter: Michael Chesser, Dublin Institute of Technology, Ireland
Authors: Michael Chesser, Jim Hanly, Damien Cassells

Analysis of Energy System Resilience Under Wicked Socio-Environmental Disruptions – A Framework
Presenter: Jani Mikkola, Aalto University, School of Science, Finland
Authors: Jani Mikkola, Liinu Koskela, Peter D. Lund

Is Energy Consumption Neutral to Economic Growth? An Empirical Analysis on Energy Conservation and Decoupling
Presenter: Marco Martinez, Sant'Anna School of Advanced Studies and University of Pisa, Italy
Authors: Marco Martinez, Francesco Lamperti, Mattia Guerini and Matteo Coronese

Disaggregated energy sources and poverty reduction in Nigeria
Presenter: Innocent Okwanya, Federal University Lafia, Nigeria
Authors: Innocent Okwanya

12 The market prospect of electric vehicles

The impact of electric vehicles on air quality related health costs
Presenter: Gabriele Grea, University Bocconi, Italy
Authors: Gabriele Grea

A Comprehensive view of electric mobility impact
Presenter: Alberto Pincherle
Author: Alberto Pincherle

Energy Technology, case of electric vehicles, why is it so hard to change course?
Presenter: Carolina Merighi, Intesa San Paolo Corporate and Investment Banking Madrid Branch
Authors: Carolina Merighi

On the environmental benignity and the market prospects of electric vehicles
Presenter: Amela Ajanovic, Energy Economics Group, Vienna University of Technology, Austria
Authors: Amela Ajanovic, Reinhard Haas

Wednesday - December 12, 2018

08.30-13.00 **Registration**
08.30-10.00 **Welcome coffee**

09.00-10.30 **Concurrent Sessions (13-16)**

13 The link between the growth of energy consumption, population and income levels

Energy demand and economic growth: panel data evidence from developing countries (ASEAN 4)

Presenter: Abd Aziz Azlina, University Malaysia Terengganu, Malaysia
Authors: Abd Aziz Azlina, Mahirah Kamaludin, Azilah Hasnisah

Electricity Consumption and Growth Nexus in Top-10 Electricity Consuming Countries: Evidence from Quantile-on-Quantile Regression & Non-Parametric Causality in Quantiles

Presenter: Muhammad Shahbaz, Montpellier Business School, France
Authors: Muhammad Shahbaz, Arshian Sharif, Salah Abosedra, Shawkat Hammoudeh

The study of the impact of economic and population growth on energy consumption: a statistical approach

Presenter: Mohammed AL-Otaibi, National Industrialization Company (Tasnee), Saudi Arabia
Authors: Hamad M. Mudij, Mohammed AL-Otaibi

Predictive accuracy of power consumption for countries with different income levels

Presenter: Ezgi Avci, Turkish Standards Institute, Turkey
Authors: Ezgi Avci

14 The energy policies post Paris Agreement and the energy roadmap to 2050

Physical adequacy in power generation: Spain beyond 2020

Presenter: José Manuel Chamorro, University of the Basque Country UPV/EHU, Spain
Authors: Luis María Abadie, José Manuel Chamorro

Vision 2050 - A pathway for the evolution of the refining industry and liquid fuels

Presenter: Franco Del Manso, Unione Petrolifera, Italy
Author: Franco Del Manso

Switch and defer options in renewable energy projects: evidences from Brazil

Presenter: André Luis da Silva Leite, Federal University of Santa Catarina – UFSC, Brasil
Authors: André Luis da Silva Leite, Luis Eduardo Nunes, Marcus Vinicius Lima

15 Integrating renewables in energy markets

On the impact of wind feed-in and solar power generation on Nuclear electricity production: The case of France

Presenter: François Benhmad, Montpellier University, France

Authors: François Benhmad, Jacques Percebois

How futures materialize: a case future frame of renewable energy the in Denmark

Presenter: Sietske Veenman, Radboud University, The Netherlands

Authors: Sietske Veenman, Karl Sperling

Assessing the relevance of renewable generation localization through a spot market algorithm simulator: the case of Italy

Presenter: Silvia Concettini, Université de Tours – IRJI François Rabelais, France

Authors: Silvia Concettini, Stanislao Gualdi, Anna Cret

Corporate renewable energy procurement through PPAs in the United States

Presenter: Monika Dimitrova, Bocconi University, Italy

Authors: Matteo di Castelnuovo, Monika Dimitrova

16 Strategic contribution of energy storage to energy security

Future Proofing Energy Storage Investments

Presenter: John Jung, Greensmith Energy, USA

Author: John Jung

Valuing the impact on network reliability of residential battery storage

Presenter: Damian Shaw-Williams, Queensland University of Technology, Australia

Author: Damian Shaw-Williams

Dispatch Auction Designs and Arbitrage Strategies for Energy Storage Units

Presenter: Olvar Bergland, School of Economics and Business Norwegian University of Life Sciences, Norway

Author: Olvar Bergland

BESS for Primary Frequency Regulation in Support of Thermal Power Plants

Presenter: Silvia Canevese, Ricerca sul Sistema Energetico – RSE, Italy

Authors: Silvia Canevese, Antonio Gatti

10.30-11.30 PLENARY SESSIONS

Grid security and new technologies

Sustainable mobility challenges for the transition targets

11.30-13.00 Concurrent Sessions (17-20)

17 Energy supply and security

Energy Insecurity as an Unintended Policy Outcome: Upstream Oil and Gas in China and Russia

Presenter: Elena Reshetova, Energy Studies Institute, National University of Singapore, Singapore

Author: Elena Reshetova

The geopolitical impact of Nord Stream 2

Presenter: Balázs R. Sziklai, Hungarian Academy of Sciences, Hungary

Authors: Balázs R. Sziklai, László Á. Kóczy, Dávid Csercsik

How the increase of renewable energy sources will change our energy security landscape – a look on the Baltic Sea Region states
Presenter: Julia Vainio, Subject Matter Expert, NATO ENSEC COE
Author: Julia Vainio

A risk-based evaluation of European natural gas supply security – The case of Nordstream 2
Presenter: László Á. Kóczy, Budapest University of Technology and Economics/Hungarian Academy of Sciences, Hungary
Authors: László Á. Kóczy, Dávid Csercsik, Balázs R. Sziklai

18 Technology development - Grid management

Distributed technologies in the energy markets: Welfare effects in legacy networks
Presenter: Anna Rita Bennato, Loughborough University, UK
Authors: Andrew Burlinson, Anna Rita Bennato, Monica Giuliatti

Optimality study of uplifts with a primal-dual solution approach for the Convex Hull Pricing problem
Presenter: Alvarez Cristian, Universidad Técnica Federico Santa María, Chile
Authors: Alvarez Cristian, Alejandro Angulo, Pablo Escalona

Revealing Consumption Patterns from Meter Readings: a structural deep machine learning approach
Presenter: Olvar Bergland, School of Economic Sciences - Washington State University
Authors: Olvar Bergland, Alan Love

Elecxit: The Impact of Barriers to Electricity Trade After Brexit
Presenter: Iain Staffell, Imperial College London, UK
Authors: Joachim Geske, Richard Green, Iain Staffell

19 The transition to renewable & smart energies and the decarbonization project

The Road to 100% Renewables
Presenter: John Jung, Greensmith Energy, USA
Authors: John Jung

Modeling system integration of variable renewable energies in the witch model: the role of grid and storage in future decarbonization
Presenter: Samuel Carrara, Fondazione Eni Enrico Mattei - FEEM and University of California, Berkeley, Italy
Authors: Samuel Carrara, Marco Marni, Simone Prato, Massimo Tavoni

Smart energy transition – technology convergence of renewable energy and ICT sectors
Presenter: Hanna-Liisa Kangas, Finnish Environment Institute SYKE, Finland
Authors: Hanna-Liisa Kangas, Kimmo Ollikka, Kim Yukyeong

A proposal for assessing wind power systems in Europe
Presenter: Carla Henriques, Polytechnic Institute of Coimbra - Coimbra Business School – ISCAC, Portugal
Authors: Carla Henriques, Patrícia Pereira da Silva, Nuno Figueiredo

20 From Consumers to nonusers: How new behind-the-meter service options are disrupting utility business models (Sorrentino)

Behind and beyond the meter: How new BTM service options are disrupting utility business model
Presenter: Fereidoon P. Sioshansi, Menlo Energy Economics, USA
Author: Fereidoon P. Sioshansi

Power Cloud: a framework to implement a “nonsumer” community
Presenter: Nicola Sorrentino, University of Calabria, Italy
Authors: Nicola Sorrentino, Daniele Menniti, Anna Pinnarelli

Day-ahead demand management at microgrid level using Artificial Neural Network predictions and Genetic Algorithm optimisation
Presenter: Nikolas Kampelis, Technical University of Crete, Grece
Authors: Nikolas Kampelis, E. Tsekeri, D. Kolokotsa, K. Kalaitzakis, D. Isidori, C. Cristalli

Customer stratification and different concepts of decentralization
Presenter: Dierk Bauknecht, Öko-Institute, Germany
Authors: Dierk Bauknecht, Joß Bracker, Franziska Flachsbarth, Christoph Heinemann, Dominik Seebach, Moritz Vogel

Limits of traditional distribution network tariff designs and options to move beyond
Presenter: Tim Schittekatte, Florence School of Regulation
Authors: Tim Schittekatte, Leonardo Meeus

14.00-15.30 Concurrent Sessions (21-24)

21 Current Oil Market Dynamics

The GCC Stock Markets' Response to Oil Shocks: Revisiting the Evidence
Presenter: Leila Dagher, American University of Beirut, Lebanon
Authors: Ibrahim Jamali, Leila Dagher, Nasser Badra

Determinants of Volatility Smile: the Case of Crude Oil Options
Presenter: Vesa Soini, University of Stavanger, Norway
Authors: Vesa Soini, Sindre Lorentzen

A comparison of various oil price forecasting methods with a large number of variables
Presenter: Krzysztof Drachal, Faculty of Economic Sciences, University of Warsaw
Author: Krzysztof Drachal

Time and frequency dynamics of connectedness between renewable energy stocks and crude oil prices
Presenter: Syed Jawad Hussain Shahzad, Montpellier Business School, France
Authors: Román Ferrer, Syed Jawad Hussain Shahzad; Raquel López; Francisco Jareño

22 Technology development (2)

Value of electricity supply security: a case study for Germany
Presenter: Thomas Schröder, Institute of Energy and Climate Research – Systems Analysis and Technology Evaluation (IEK-STE), Forschungszentrum Jülich GmbH, Germany
Author: Thomas Schröder

Smart meters in Sweden- lessons learned and new regulations
Presenter: Yalin Huang, Energy Market Inspectorate, Sweden
Authors: Yalin Huang, Elin Grahn

Potentials and limitations of photovoltaic-based cellular energy systems in southern Germany
Presenter: Matthias Kühnbach, Fraunhofer ISI, Germany
Authors: Matthias Kühnbach, Stefan Pisula, Anke Eßer

Determined A Reference Price by CO2 Abatement Cost for Window Films
Presenter: Sheng-Dih Hwang, Institute of Nuclear Energy Research, Atomic Energy Council, ROC, Taiwan
Authors: Sheng-Dih Hwang, Yu-Ching Huang

23 Perspectives of transport sector

Impact of Euro 6 diesel passenger cars on urban air quality compliance in Italy

Presenter: Franco Del Manso, Unione Petrolifera, Italy

Authors: Franco Del Manso

The future of technologies for mobility, a model based approach

Presenter: Gabin Mantulet, LPSC – CNRS, Laboratoire de Physique Subatomique & Cosmologie, France

Authors: Gabin Mantulet, Silvana Mima, Adrien Bidaud

Current development and future potential of carsharing in Spain: insights from experts and users in-depth interviews

Presenter: Alessandro Silvestri, Basque Centre for Climate Change (BC3), Spain

Authors: Alessandro Silvestri, Sebastien Foudi, Ibon Galarraga

Prospects for the development of Polish electromobility

Presenter: Wojciech Drożdż, Szczecin University/ENEA Operator, Poland

Author: Wojciech Drożdż

24 European energy security strategies

Regulation and efficiency: which governance model for energy security after the Winter Package?

Presenter: Marina Petri, Bocconi University, Italy

Author: Marina Petri

Ready for the next step? The human capital of German renewable energy cooperatives' management with a view to implementing new business models

Presenter: Benedikt Rilling, Nuertingen-Geislingen University, ISR, Germany

Authors: Carsten Herbes, Benedikt Rilling, Lars Holstenkamp

Anticipatory Strategies for Eastern European Natural Gas Security

Presenter: Ryan Brown, UN Economic Commission for Europe, Sustainable Energy Division, USA

Authors: Ryan Brown

Belt & Road initiative: Challenge or chance for the European energy security?

Presenter: Maria Belka, Forschungszentrum Jülich, Germany

Authors: Maria Belka

15.30-17.00 Concurrent Sessions (25-27)

25 The impact of oil price fluctuation

Does Pipeline Constraint Discount Crude Oil Prices? Evidence From Western Canada

Presenter: Xiaoli Zheng, University of Calgary, Department of Economics, Canada

Authors: Xiaoli Zheng, Donald MacCallum

Can oil based power companies improve the household welfare in Bangladesh economy? a DSGE analysis

Presenter: Sakib Amin, Durham University Business School, UK

Authors: Sakib Amin, Laura Marsiliani, Thomas Renstrom

Oil prices and state unemployment rates

Presenter: Mohamad B. Karaki, Lebanese American University, Lebanon

Author: Mohamad B. Karaki

26 Hydrogen & Biofuels

Playing on two markets: investment evaluation of a biogas – bio-methane power plant in a Smart Grid environment

Presenter: Marina Bertolini, University of Padova, Department of Economics and Management and CRIEP; Italy

Authors: Marina Bertolini, Dimitrios Zormpas

The hydrogen production from RES impact on energy and fuel markets

Presenter: Gaetano Squadrito, Institute for Advanced Energy Technologies “Nicola Giordano” CNR-ITAE, Italy

Authors: Agatino Nicita, Gaetano Maggio, Antonio P.F. Andaloro, Gaetano Squadrito

Consideration about Hydrogen and Fuel Cells in the Paris Agreement 1.5°C Perspective

Presenter: Mario Valentino Romeri, Energy consultant

Author: Mario Valentino Romeri