

in cooperation with

**SDA Bocconi**  
SCHOOL OF MANAGEMENT  
SUSTAINABILITY LAB

# 6<sup>th</sup> AIEE Energy Symposium

virtual conference - 14-16 December, 2021

Conference Proceedings

## Current and Future Challenges to Energy Security

The energy transition, the pathway from low carbon to decarbonization

## Conference sponsors



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Dear Energy Colleague,

The **Italian Association of Energy Economists - AIEE**, affiliate of the **International Association for Energy Economics - IAEE**, is organizing the **6th AIEE Energy Symposium on Energy Security - 2021**, in cooperation with the **SDA Bocconi School of Management**, of Milan, programmed as usual for **mid December**.

Although we are on the cusp of winning our battle against the pandemic, thanks to healthcare and innovators, there is still uncertainty regarding travelling around the world, social distancing and possibility to attend the event physically.

Therefore we decided that the AIEE Energy Symposium 2021 will be organized as a **virtual online conference** hoping that with our next edition we will all be able to meet again in a normal face to face event, in 2022.

The **AIEE Energy Symposium on Energy Security** has become an important yearly appointment and an opportunity to discuss energy security, climate change, to explore new and existing trends, creative solutions of new technologies, the emergence of new market conditions and of new market operators.

### **An appointment we do not want to miss!**

A recent survey conducted in the European Union has confirmed a general consensus of all countries to support the efforts to strengthen energy security. All Europeans agree the EU's energy policy priorities should be to ensure secure, clean, and affordable energy, to combat climate change, decreasing energy consumption across the EU and facilitating more competitive prices for consumers.

For the coming 10 years the main priority is investing and developing

clean energy technologies, ensuring that costs are as low as possible and stepping up international efforts to reduce climate change.

After the crisis of COVID-19, energy security will remain an important issue of the world energy policy and the key for a more resilient society. The pandemic has set in motion the largest drop in global energy investment in history, with spending expected to plunge in every major sector this year – from electricity to renewables and energy efficiency. The overall share of global energy spending that goes to clean energy technologies – including renewables, efficiency, carbon capture, utilization and storage – has been stuck at around one-third in recent years. Power sector spending is on course to decrease by 10% in 2020, with worrying signals for the development of more secure and sustainable power systems. Energy efficiency, a central pillar of clean energy transitions, is suffering too. Estimated investment in efficiency and end-use applications is set to fall by an estimated 10–15%. The slowdown in spending on key clean energy technologies also risks undermining the much-needed transition to more sustainable energy systems.

The **AIEE Symposium** will be a forum to discuss all these problems, continuing the dialogue of the past editions analyzing the transformations of the concept of energy security in this new context.

A comprehensive program, with Plenary sessions and keynote presentations, and several concurrent sessions will give the attendees from all over the world the occasion to participate in an interactive, collaborative networking and information-sharing event, in the prestigious context of the **SDA Bocconi School of Management** (that was ranked 3rd in the 2019 Financial Times' European Business School Ranking and 8th in the world for business and management studies).

## **Organization**

Conference General Chair: G.B. ZORZOLI, AIEE President, Italy

Steering Committee Chair: CARLO DI PRIMIO, AIEE Past President, Italy

Organization Committee Chair: CARLO ANDREA BOLLINO, Professor University of Perugia, Honorary President, AIEE, Italy

Programme Committee Chair: MATTEO DI CASTELNUOVO, Director, Master in Sustainability and Energy Management (MaSEM) e SDA Associate Professor of Practice in Energy Economics, President of the Program Committee

Scientific Committee Chair: AGIME GERBETI, President AIEE Scientific Committee, Italy

Organization and coordination: ANKA SERBU, External Relations & Communication, AIEE, Italy

### **SCIENTIFIC COMMITTEE CHAIR: AGIME GERBETI, AIEE, Italy**

**Amela Ajanovic**, Professor TU WIEN, Energy Economics Group (EEG), Austria, **Federico Boffa**, Professor of Applied Economics, Free University of Bolzano, Italy, **Carlo Andrea Bollino**, Professor University of Perugia, Italy, **Christophe Bonnery**, Executive Vice President IAEE, France, **Carlo Cambini**, Professor Polytechnic University of Torino, Italy, **Pantelis Capros**, Professor, E3MLab – Energy Economy Environment Modelling Lab, Greece, **Çiğdem Çelik**, Professor Istanbul Okan University, Turkey, **Cristina Comaro**, Professor University of Rome Tor Vergata, Italy, **Anna Creti**, Professor, Université Paris Dauphine, France, **Vittorio D'Ermo**, Vice President AIEE, Italy, **Maria Chiara D'Errico**, Post Doctoral Researcher, University of Perugia, Italy, **Silvio De Nigris**, Public Officer at the Sustainable Energy Department, Piemonte Region, **Eric Delarue**, Professor KU Leuven Department of Mechanical Engineering, Belgium, **Matteo Di Castelnuovo**, Associate Professor, SDA Bocconi School of Management, Italy, **Ivan Faiella**, Directorate General for Economics, Statistics and Research, Banca d'Italia, Italy, **Marco Falcone**, Government Relations and Issues Manager, Esso Italiana, ExxonMobil Group, Italy, **Giovanni Ferri**, Professor LUMSA University, Italy, **Elena Fumagalli**, Assistant Professor, Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands, **Antonio Geracitano**, Adjunct Professor, University Tor Vergata, Italy, **Monica Giulietti**, Professor, Head of the Economics discipline group, Loughborough University, UK, **Jean Michel Glachant**, European University Institute-EUI, Florence School, Vice President for Communication IAEE, **Reinhard Haas**, Associate professor at the "Institute of Energy Systems and Electric Drives" at Vienna University of Technology, Austria, **Nevenka Hrovatin**, Professor School of Economics and Business, University of Ljubljana, Slovenia, **Mario Iannotti**, Advisor on Sustainable Development (IMELS), Ministry of Environment, Italy, **Gürkan Kumburoğlu**, Professor and Vice Rector at Bogazici University, Turkey, **Xavier Labandeira**, Professor, University of Vigo, Spain, **Arturo Lorenzoni**, Professor University of Padua, Italy, **Peter D. Lund**, Professor in Advanced Energy Systems Aalto University, Finland, **Baltasar Manzano**, University of Vigo, Spain, **Carlo Mari**, Professor Department of Management and Business Administration, University of Chieti-Pescara, Italy, **Silvana Mima**, Senior Researcher, CNRS – Grenoble Applied Economy Laboratory (GAEL), **Luis Mundaca**, Professor at IEEE International Institute for Industrial Environmental Economics, Lund University, Sweden, **Spiros Papaefthimiou**, Technical University of Crete, President of the IAEE Greek Affiliate HAAE, Greece, **Silvia Pariente-David**, Senior advisor and consultant on energy center for Mediterranean Integration, France, **Lucia Visconti Parisio**, Professor, Bicocca University, Italy, **Jacques Percebois**, Professor University of Montpellier, Head of CREDEN, France, **Paolo Polinori**, Professor, Economics Department at University of Perugia, Italy, **Alberto Ponti**, Senior Partner Head of Strategy & Business Development F2i Sgr, Italy, **Aaron Praktikjnjo**, Professor RWTH Aachen University, Council Member of IAEE, Germany, **Ionut Purica**, Professor Advisory Center for Energy and Environment, Romanian Academy, Romania, **Nicoletta Rangone**, Professor LUMSA University, Italy, **Alessandro Rubino**, Professor University of Bari, Italy, **Federico Santi**, Professor University of Rome La Sapienza, Italy, **Alessandro Sapio**, Professor, Parthenope University of Naples, Italy, **Nicola Sorrentino**, Professor, University of Calabria, Italy, **Miguel Vasquez**, Professor George Washington University, USA, **Manfred Weissenbacher**, University of Malta Institute for Sustainable Energy, Malta, **Mine Yücel**, Senior Research Advisor, Federal Reserve Bank of Dallas, USA.

### **PROGRAMME COMMITTEE CHAIR: MATTEO DI CASTELNUOVO, Sustainability Lab, SDA Bocconi School of Management, Italy**

**Fabio Catino Treccani**, and Rocket Capital Investment, Italy; **Gianluca Carrino**, AIEE, Italy; **Vittorio D'Ermo**, AIEE, Italy; **Marco Falcone**, Esso Italiana, ExxonMobil Group, Italy; **Mario Iannotti**, Advisor on Sustainable Development (IMELS), Italy; **Stefano Pogutz**, Sustainability Lab, SDA Bocconi School of Management, Italy; **Maximilian Rinck**, Independent energy consultant, Germany; **Gianluca Salvio**, Devo Lab, SDA Bocconi School of Management, Italy; **Francesco Scalia**, University of Cassino and Southern Lazio, Italy; **Elisa Scarpa**, Edison, Italy

## **Conference Secretariat**

AIEE - Italian Association of Energy Economists

Phone: +39 06 3227367 - Email: [assaiee@aiee.it](mailto:assaiee@aiee.it); [aiee@aieesymposium.eu](mailto:aiee@aieesymposium.eu)

## Conference agenda

### Tuesday, December 14, 2021

#### 15:30-17:00 Opening Session – Welcome Address

15.20-15.30 test of the technical settings with the speakers

15.30-17.00 session

**G.B. Zorzoli**, AIEE President, Conference General Chair

**Matteo Di Castelnuovo**, Director, Master in Sustainability and Energy Management (MaSEM) e SDA Associate Professor of Practice in Energy Economics, President of the Program Committee

**Carlo Di Primio**, AIEE Past President, Steering Committee Chair

**Carlo Andrea Bollino**, Honorary President AIEE and Chair of the Organization Committee

#### *Keynote speakers:*

**Majid Al Moneef**, Chair of the IAEE 2023 Committee, Chairman of the International Advisory Committee of King Abdullah Petroleum Studies and Research Center (KAPSARC)

*Perspectives of the impact of energy transitions on the oil and gas producing states*

**Lucile Dufour**, Senior Policy Advisor, International Institute for Sustainable Development - IISD, Canada

*The latest findings of the Energy Policy Tracker. The key trends in energy-related COVID-19 response since the beginning of the pandemic in 2020, notably in G20 countries, how to align public money commitments with an accelerated clean energy transition towards net zero emissions.*

**Fereidoon Sioshansi**, President Menlo Energy Economics, USA

*The evolution of consumer demand in the electricity sector*

### Wednesday, December 15, 2021

#### 09.00 -10.30 Virtual concurrent session (cycle 1-4) - 1h.30'

08.50-09.00 test of the technical settings with the speakers

09.00-10.30 session

##### **01 Energy markets - case studies**

*Chair: Michele Governatori*, Energy Programme Lead, ECCO, Italy

##### **02 Energy transition and transformation**

*Chair: Anna Creti*, Professor, Université Paris Dauphine, France

##### **03 Current Gas Market Dynamics**

*Chair: Carlo Di Primio*, AIEE, Italy

##### **04 Electricity vehicles and smart mobility**

*Chair: Peter D. Lund* Professor in Advanced Energy Systems, Aalto University, Finland

## **10.40 -11.40 Dual Plenary Sessions - 1h.00'**

10.30-10.40 test of the technical settings with the speakers

10.40-11.40 session

### **EU towards 2050 and the energy security concerns**

*Chair:* **Livio de Santoli**, Professor Sapienza University of Rome, Deputy Rector for Energy Policies, President of FREE Coordination (Coordination of Renewable Sources and Energy Efficiency), Italy

### **Regulatory challenges and market developments**

*Chair:* **Guido Bortoni**, Past President of the Italian Energy Regulatory Authority

## **11.50-13.20 Virtual concurrent session (cycle 5-8) - 1h.30'**

11.40-11.50 test of the technical settings with the speakers

11.50-13.20 session

### **05 Carbon pricing and collaborative governance for de-carbonization**

*Chair:* **Nicola Sorrentino**, University of Calabria, Italy

### **06 Energy efficiency in buildings**

*Chair:* **Federico Santi**, University of Rome La Sapienza, Italy

### **07 Renewable Energy markets**

*Chair:* **Max Rinck**, Head of "New Concepts and Technologies" at VIK e.V.

### **08 Energy distribution and energy storage**

*Chair:* **Lucia Parisio Visconti**, University Bicocca, Italy

## **13.20 -14.20 Break**

## **14.30-16.00 Dual Plenary Sessions - 1h.30'**

14.20-14.30 test of the technical settings with the speakers

14.30-16.00 session

### **Energy industry challenges to a low-carbon economy, the RES and gas role in the transition**

*Chair:* **Carlo Di Primio**, AIEE President, Italy

### **Sustainable mobility challenges for the transition targets**

*Chair:* **G.B. Zorzoli**, AIEE President, Italy

**16.10 -17.40 Virtual concurrent session (cycle 9-12) - 1h.30'**

16.00-16.10 test of the technical settings with the speakers

16.10-17.40 session

**09 Energy efficiency, the efforts to achieve net-zero climate goals**

*Chair:* Prof. Çelik Çiğdem Professor İstanbul Okan University

**10 Biofuels, hydrogen and other sustainable technologies: current situation and alternative scenarios**

*Chair:* Antonio Geracitano, RSE Italy

**11 Current Oil and Coal Market Dynamics**

*Chair:* Davide Tabarelli, President NE Nomisma Energia, Italy

**12 The role of nuclear power in energy transition**

*Chair:* Giuseppe Zollino, Professor University of Padua, Italy

## Thursday, December 16, 2021

**09.00 -10.30 Virtual concurrent session (cycle 13-16) - 1h.30'**

08.50-09.00 test of the technical settings with the speakers

09.00-10.30 session

**13 Energy security and new technologies for sustainability**

*Chair:* Nevenka Hrovatin Professor School of Economics and Business, University of Ljubljana, Slovenia

**14 The Electricity market: risks and opportunities**

*Chair:* Elena Fumagalli, Assistant Professor, Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands

**16 Circular economy and Smart Solutions**

*Chair:* Ionut Purica, Professor, Advisory Center for Energy and Environment, Romanian Academy, Romania

**10.40 -11.40 Dual Plenary Sessions - 1h.00'**

10.30-10.40 test of the technical settings with the speakers

10.40-11.40 session

**Grid security and new technologies**

*Chair:* Salvatore Pinto, Axpo President, Italy

**Energy Efficiency and the future strategies of the energy industry**

*Chair:* Gurkan Kumbaroglu - Professor University of Boğaziçi, President of TRAEE- The Turkish Association of Energy Economics

## **11.50-13.20 Virtual concurrent session (cycle 17-20) - 1h.30'**

11.40-11.50 test of the technical settings with the speakers

11.50-13.20 session

### **17 GHG reduction and technological progress**

*Chair:* **Tiziano Pignatelli**, ENEA and Co-Chair Task Force on Techno-economic Issues - UN-ECE Air Convention, Italy

### **18 The changing geopolitics of energy**

*Chair:* **Federico Boffa**, Professor of Applied Economics, Free University of Bolzano, Italy

### **19 Pathway to transition: the cooperation role**

*Chair:* **Cecilia Camporeale**, ENEA, Italy

### **20 Energy and Carbon Market**

*Chair:* **Lu-Tao Zhao**, Beijing Institute of Technology, China

## **13.20 -14.20 Break**

## **14.20 -15.30 Plenary Session - 1h.00'**

14.20-14.30 test of the technical settings with the speakers

14.30-15.30 session

### **The Hydrogen revolution**

*Chair:* **Carlo Andrea Bollino**, AIEE Honorary President, Professor University of Perugia, Italy



# Conference Program

**Tuesday, December 14, 2021**

**15:30-17:00 Opening Session – Welcome Address**

**Wednesday, December 15, 2021**

**09.00 -10.30 Virtual concurrent session (cycle 1-4) - 1h.30'**

**08.50-09.00 test of the technical settings with the speakers**

**09.00-10.30 session**

## **1. Energy markets - case studies**

*Chair:* **Michele Governatori**, Energy Programme Lead, ECCO, Italy

### **Appraisal of Nigeria's energy planning: prospects for sustainable development**

Presenter: Olasunkanmi Olusogo Olagunju, University of Lagos  
Authors: Olasunkanmi Olusogo Olagunju, Olufemi Muibi Saibu, Isaac Chii Nwaogwugwu, Maryam Modupe Quadri, Oludayo Ayodeji Akintunde

### **Assessment of the French capacity mechanism: a market tool guaranteeing power security of supply?**

Presenters: Guillaume Gonzalez and Jean-Baptiste Arnoux, RTE Réseau de Transport d'électricité, France  
Authors: Guillaume Gonzalez, Jean-Baptiste Arnoux, Jules Parolin

### **The Impact of Electricity Outages on Health Outcomes of Children in Kyrgyzstan**

Presenter Yermone Sargsyan, Institute of Economic Studies Faculty of Social Science Charles University Prague, Czech Republic  
Author: Yermone Sargsyan

## **3. Current Gas Market Dynamics**

*Chair:* **Carlo Di Primio**, AIEE, Italy

### **Incentive Schemes to Eliminate Natural Gas Flaring & Venting**

Presenter: Giacomo Benini, Stanford University, USA  
Authors: Giacomo Benini, Valerio Dotti

### **The methane supply chain, from production to transport and consumption, in the light of the EU strategy**

Presenter: Carla Mazziotti, National Research Council, Italy  
Authors: Carla Mazziotti, Vincenzo Delle Site

### **Solidarity measures: assessment of strategic gas storage coordination among EU member states on EU natural gas supply resilience**

Presenter: Marzia Sesini, Université Paris-Dauphine, Institut Europlace de Finance, France  
Authors: Marzia Sesini, Sara Giarola, Adam D. Hawkes

### **Retail price convergence across EU electricity and natural gas markets**

Presenter: Consuelo Rubina Nava, Università degli Studi di Torino, Italy  
Authors: Consuelo Rubina Nava, Ernesto Cassetta, Maria Grazia Zoia

## **2. Energy transition and transformation**

*Chair:* **Anna Creti**, Professor, Université Paris Dauphine, France

### **Iran's Hydrogen Investment Potentials towards Smooth Energy Transition**

Presenter: Mohammad Hassan Hassan zadeh, Shahid Beheshti University, Iran  
Authors: Fazel M. Farimani, Soroush Rahmatian and Mohammad Hassanzadeh

### **Electrification of the hard-to-abate chemical sector: implication for Net-Zero power systems in Europe**

Presenter: Clément Cabot, Mines ParisTech, France  
Authors: Clément Cabot, Manuel Villavicencio

### **The decarbonization of the European chemical industry: a scenario analysis**

Presenter: Linda Reinert, SDA Bocconi School of Management, Italy  
Authors: Linda Reinert

## **4 Electricity vehicles and smart mobility**

*Chair:* **Peter D. Lund**, Aalto University, Finland

### **Optimize urban traffic through vehicle-to-grid price system**

Presenter: Marina Bertolini, University of Padova, Italy  
Authors: Marina Bertolini, Marco Agostini, Massimiliano Coppo, Giulia De Matteis

### **Optimizing a company fleet of electric vehicles under technical and societal uncertainties**

Presenter: Lukas Gnam, University of Applied Sciences Burgenland, Austria  
Authors: Lukas Gnam, Markus Schindler, Christian Pfeiffer, Markus Puchegger

### **Electric vehicles participation in load frequency control of an interconnected power system is not sustainable**

Presenter: Nallapaneni Manoj Kumar, School of Energy and Environment, City University of Hong Kong, China  
Authors: Nallapaneni Manoj Kumar and Shauhrat S Chopra



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## 10.40 -11.40 Dual Plenary Sessions - 1h.00'

10.30-10.40 test of the technical settings with the speakers

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### EU towards 2050 and the energy security concerns

**Livio de Santoli**, Professor Sapienza University of Rome, Deputy Rector for Energy Policies, President of FREE Coordination - Coordination of Renewable Sources and Energy Efficiency, Italy

**Marco Falcone**, Government Relations and Issues Manager, Esso Italiana, Exxon Mobil Group, Italy

**Silvia Pariente-David**, Consultant on energy and climate change and Senior advisor – Center for Mediterranean Integration, World Bank, France

**Alicia Mignone**, Senior Energy Advisor, MAECI and Ex President of the IEA Committee on Energy Research and Technology, Italy

### Regulatory challenges and market developments

*Chair:* **Guido Bortoni**, Past President of the Italian Energy Regulatory Authority

**Jean Michel Glachant**, Director of the Florence School of Regulation and the Holder of the Loyola de Palacio Chair

**Ozge Ozden**, Secretary General ELDER - Association of Electricity Distribution

**Fabrizio Falconi**, Energy Regulation Coordinator - Regulatory Affairs Area, Utilitalia -Federation of the Italian Utilities, Italy

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## 11.50-13.20 Virtual concurrent session (cycle 5-8) - 1h.30'

11.40-11.50 test of the technical settings with the speakers

11.50-13.20 session

### 5. Carbon pricing and collaborative governance for de-carbonization

*Chair:* **Nicola Sorrentino**, University of Calabria, Italy

#### Carbon tax with macroeconomic stimulus: GDP as an inferior good

Presenter: Jim Stodder, Boston University, USA

Authors: Jim Stodder, Ivan Julio

#### Collaborative governance in the European transmission network investment for cross-border cooperation

Presenter: Diyun Huang, University of Leuven, Belgium

Authors: Diyun Huang, Geert Deconinck

#### Carbon Contract for Differences for the development of low-carbon hydrogen in Europe

Presenter: Corinne Metta-Versmessen, Chaire Economie du Climat, France

Authors: Corinne Chaton, Coline Metta

#### The European Commission proposal for reaching -55% GHG reductions by 2030 in the journey towards climate neutrality

Presenter: Paolo Bertoldi, European Commission DG JRC, Italy

Authors: Paolo Bertoldi

### 6. Energy efficiency in buildings

*Chair:* **Federico Santi**, University of Rome La Sapienza, Italy

#### Energy efficiency of buildings: a simple but accurate way to perform calculations

Presenter: Giuseppe Dell'Olio, GSE, Italy

Authors: Giuseppe Dell'Olio

#### The extent of barriers and drivers to energy efficient retrofits in residential sector: A bibliometric analysis

Presenter: Janez Dolšak, School of Economics and Business, Slovenia

Authors: Janez Dolšak

#### Energy efficiency as a key factor for the sustainability pathway of organizations. The case of the European Space Agency ESA-ESRIN in Rome

Presenter: Francesco Castellani, Studio Santi, Italy

Authors: Francesco Castellani, Maria Carmen Falvo, Federico Santi, M. Della Fornace

#### Energy efficiency improvement strategies for important historic buildings used as offices.

##### A case study in Rome

Presenter: Alessandro Pelliccia, University of Rome La Sapienza, Italy

Authors: Federico Santi, Francesco Castellani, A. Zuppa, V. Di Prospero, L.D. Antonuzzi, R.A. Acri

## 7. Renewable Energy markets

*Chair:* **Max Rinck**, Head of "New Concepts and Technologies" at VIK e.V.

### **Assessment of renewable energy sources impact on Nuclear power: The case of France**

*Presenter:* Jacques Percebois, Montpellier University, France  
*Authors:* François Benhmad, Jacques Percebois

### **Renewable energy proliferation for energy security: role of cross border electricity trade**

*Presenter:* Aarushi Mahajan, LM Thapar School of Management, Thapar Institute of Engineering and Technology, India  
*Authors:* Amit Prakash Jha, Sanjay Kumar Singh, Aarushi Mahajan

### **Comparing social costs of decarbonization: electrification versus green fuels (biomethane)**

*Presenter:* Francesco Gullì, Bocconi University, Italy  
*Authors:* Francesco Gullì, Maurizio Repetto

### **Techno-economic analysis of a blockchain-enabled rooftop solar photovoltaic based peer-to-peer energy market using agent-based model**

*Presenter:* Animesh Singh, School of Energy and Environment, City University of Hong Kong, Kowloon, Hong Kong  
*Authors:* Animesh Singh, Nallapaneni Manoj Kumar, Shauhrat S. Chopra

## 8. Energy distribution and energy storage

*Chair:* **Lucia Parisio Visconti**, University Bicocca, Italy

### **Impact of incentive regulation for battery sizing and management**

*Presenter:* Angelo Facchini, IMT School for Advanced Studies Lucca, Italy  
*Authors:* Angelo Facchini, Alessandro Rubino, Alfonso Damiano

### **Dynamics of power markets and competition**

*Presenter:* Ionut Purica, Hyperion University /Advisory Center for Energy and Environment, Romania  
*Authors:* Ionut Purica

### **The value of flexibility: a cost benefit analysis of Merlin project**

*Presenter:* Karim Anaya, University of Cambridge, UK  
*Authors:* Karim Anaya, Michael G Pollitt

## 13.20 -14.20 – Break

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### 14.30-16.00 Dual Plenary Sessions - 1h.30'

14.20-14.30 test of the technical settings with the speakers

14.30-16.00 session

### **Energy industry challenges to a low-carbon economy, the RES and gas role in the transition**

*Chair:* **Carlo Di Primio**, AIEE President, Italy

**Alessandro Lagostena**, Regulatory & Public Affairs Head of Energy & Environmental Studies, ERG, Italy

**Simone Nisi**, Head of Institutional Affairs, Edison, Italy

**Ahmet Türkoğlu**, CEO - Energy Exchange Istanbul (EXIST), Turkey

**Andrea Zaghi**, General Manager Elettricità Futura, Italy

### **Sustainable mobility challenges for the transition targets**

*Chair:* **G.B. Zorzoli**, AIEE President, Italy

**Amela Ajanovic**, Assistant Professor & Senior Research Scientist, Energy Economics Group, Vienna University of Technology, Austria

**Mariarosa Baroni**, President NGV Italy

**Francesco Naso**, General Secretay *MOTUS-E* member of the European Platform for Mobility, Italy

**Franco Del Manso**, International Environment Affairs Manager UNEM - Energy Union for Mobility, Italy

**Dario Soria**, General Manager Assocostieri, Italy

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## **16.10 -17.40 Virtual concurrent session (cycle 9-12) - 1h.30'**

16.00-16.10 test of the technical settings with the speakers

16.10-17.40 session

### **9. Energy efficiency, the efforts to achieve net-zero climate goals**

*Chair:* Çelik Çiğdem Professor İstanbul Okan University

#### **Co-movement between Commodity and Equity Markets Revisited - An Application of the Thick Pen Method**

Presenter: Sania Wadud, The University of Aberdeen, UK  
Authors: Sania Wadud, Marc Gronwald, Robert B. Durand, Seungho Lee

#### **Carbon Border Adjustment Mechanism in the Transition to Net-Zero Emissions: Collective Implementation and Distributional Impacts**

Presenter: Sigit Perdana, EPFL, Switzerland  
Authors: Sigit Perdana, Marc Vielle

#### **COVID and exercise of market power in electric markets**

Presenter: Carlo Andrea Bollino, University of Perugia, Italy  
Author: Carlo Andrea Bollino

### **10. Biofuels, hydrogen and other sustainable technologies: current situation and alternative scenarios**

*Chair:* Antonio Geracitano, RSE Italy

#### **Energy, Economic, and Environmental Accounting for Biomass Fuels in Ethiopia**

Presenter: Amsalu Woldie Yalew, Ca' Foscari University of Venice, Italy  
Authors: Amsalu Woldie Yalew

#### **Liquid alternative fuels for transport decarbonisation: meeting the fit-for-55 goals**

Presenter: David Chiaramonti, Politecnico di Torino, Italy  
Authors: David Chiaramonti, Carlo Cambini, Matteo Prussi, Chiara Ravetti

#### **H<sub>2</sub> pipelines? Not a new issue: the Snam experience**

Presenter: Luca Bacchi, Snam, Italy  
Authors: Luca Bacchi, Giampaolo Annoni, Marino Crespi

### **11. Current Oil and Coal Market Dynamics**

*Chair:* Davide Tabarelli, President NE Nomisma Energia, Italy

#### **Estimating upstream oil production cost for optimized oil allocation: the Nigeria case**

Presenter: Kaase Gbakon, Emerald Energy Institute, University of Port Harcourt, Nigeria  
Authors: Kaase Gbakon, Joseph Ajienka, Joshua Gogo, Omowumi Iledare

#### **Who refines oil and why: disentangling investment decisions from countries and companies**

Presenter: Olivier Massol, IFP School, France  
Authors: Olivier Massol, Arthur Thomas, Quentin Hoarau

#### **Strategic co-optimization on the Italian day-ahead and ancillary services markets: implications for the phase out of coal and for the path towards carbon neutrality**

Presenter: Federico Pontoni, Fondazione Eni Enrico Mattei, Italy  
Authors: Federico Pontoni, Annamaria Zaccaria, Ilaria Livi, Edoardo Somenzi

#### **Oil price forecasting with some genetic algorithm variable selection model**

Presenter: Krzysztof Drachal, Faculty of Economic Sciences, University of Warsaw, Poland  
Authors: Krzysztof Drachal

### **12. The role of nuclear power in energy transition**

*Chair:* Giuseppe Zollino, Professor University of Padua, Italy

#### **An Analysis of Electricity Decarbonization in Japan with Nuclear and Renewable by Long-term Optimal Power Generation Mix Model considering Nuclear Fuel Cycle**

Presenter: Hotaka Minatomoto, The University of Tokyo, Japan  
Authors: Hotaka Minatomoto, Ryoichi Komiyama, Y asumasa Fujii

#### **Economic viability of nuclear power plants in India - a cost benefit analysis**

Presenter: Ankita Sangle, Vishwakarma University, Pune, India  
Authors: Kakali Mukhopadhyaya, Ankita Sangle

Thursday, December 16, 2021

**09.00 -10.30 Virtual concurrent session** (cycle 13-16) - 1h.30'

08.50-09.00 test of the technical settings with the speakers

09.00-10.30 session

### **13. Energy security and new technologies for sustainability**

*Chair:* **Nevenka Hrovatin** Professor School of Economics and Business, University of Ljubljana, Slovenia

#### **Energy security: towards a new model**

Presenter: Nikolai Mouraviev, Abertay University, UK

Authors: Nikolai Mouraviev

#### **Evaluating the effect of energy technology choices on linkages between sustainable development goals**

Presenter: Magdalena Klemun, The Hong Kong University of Science and Technology

Authors: Magdalena Klemun, Sanna Ojanperae, Amy Schweikert

#### **Blockchain-enabled dynamic grapevoltaic farms for selected wine risk regions on a global level and the potential opportunities for symbiotic industrial networks**

Presenter: Nallapaneni Manoj Kumar, School of Energy and Environment, City University of Hong Kong, Kowloon, Hong Kong

Authors: Nallapaneni Manoj Kumar, Shauhrat S Chopra

### **14. The Electricity market: risks and opportunities**

*Chair:* **Elena Fumagalli**, Copernicus Institute of Sustainable Development, Utrecht University, The Netherlands

#### **The responsiveness of the aggregate electricity demand to wholesale electricity prices**

Presenter: Tarun Khanna, Hertie School, Germany

Authors: Tarun Khanna, Oliver Ruhnau

#### **Bidding and Investment in Wholesale Electricity Markets: Pay-as-Bid vs Uniform-Price Auctions**

Presenter: Yueting Yu, Tilburg University, The Netherlands

Authors: Yueting Yu, Bert Willems

#### **When does reserves market exist?**

Presenter: Dongchen He, Tilburg University, The Netherlands

Authors: Dongchen He

### **16. Circular economy and Smart Solutions**

*Chair:* **Ionut Purica**, Professor, Advisory Center for Energy and Environment, Romanian Academy, Romania

#### **Circular economy, patents and industrial designs: evidence from European countries**

Presenter: Enrico Gabriele, LUMSA University, Italy

Authors: Enrico Gabriele

#### **Installable Potential of Small Modular Reactors and Renewable Energy for Achieving Carbon Neutrality in Electric Power System**

Presenter: Ryoichi Komiyama, The University of Tokyo, Japan

Authors: Ryoichi Komiyama, Yasumasa Fujii

#### **The digital ecological footprint. How can we engage to reduce its environmental impact?**

Presenter: Gianluca Carrino, AIEE, Italy

Authors: Gianluca Carrino

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## 10.40 -11.40 Dual Plenary Sessions - 1h.00'

10.30-10.40 test of the technical settings with the speakers

10.40-11.40 session

### Grid security and new technologies

*Chair:* **Salvatore Pinto**, Axpo President, Italy

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**Matteo Codazzi**, CEO, CESI, Italy

**Luciano Martini**, General Manager Technologies of Transmission and Distribution Department, RSE, Italy

**Christian D'Adamo**, Head of Network and Systems Operation and Maintenance – Enel Global Infrastructure and Networks, Italy

### Energy Efficiency and the future strategies of the energy industry

*Chair:* **Gurkan Kumbaroglu** - Professor University of Boğaziçi, President of the Turkish Association of Energy Economics

**Sandro Neri**, Federmanager - Federation of Italian Managers, Italy

**Dario Di Santo**, Head Manager, Italian Federation for energy efficiency – FIRE, Italy

**Ferdinando Pozzani**, CEO, TEON, Italy

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## 11.50-13.20 Virtual concurrent session (cycle 17-20) - 1h.30'

11.40-11.50 test of the technical settings with the speakers

11.50-13.20 session

### 17. GHG reduction and technological progress

*Chair:* Tiziano Pignatelli, ENEA and Co-Chair Task Force on Techno-economic Issues - UN-ECE Air Convention, Italy

#### Socio-economic impacts of ambitious GHG reduction targets with explicit green technology information

Presenter: Maximilian Banning, GWS mbH, Germany

Authors: Christian Lutz, Maximilian Banning, Lisa Becker, Markus Flaute

#### Impact of technological progress on sectoral carbon emissions: does it differ across country's income level?

Presenter: Chris Belmert Milindi, University of Pretoria, South Africa

Authors: Chris Belmert Milindi, Roula Inglesi-Lotz

#### Local authorities contribution to GHG emission reductions: the Covenant of Mayors experience

Presenter: Paolo Bertoldi, European Commission DG JRC, Italy

Authors: Paolo Bertoldi

#### Road Public Transport decarbonisation: a comparison among vehicle technologies

Presenter: Maria Pia Valentini, ENEA, Italy

Authors: Maria Pia Valentini, Silvia Orchi, Valentina Conti, M. Corazza

### 18. The changing geopolitics of energy

*Chair:* **Federico Boffa**, Professor of Applied Economics, Free University of Bolzano, Italy

#### Electricity Market Relationship between Great Britain and its Neighbors: Distributional Effects of Brexit

Presenter: Christopher Ball, Forschungszentrum Jülich, Germany

Authors: Christopher Ball, Philip Mayer, Stefan Vögele, Kristina Govorukha, Dirk Rübelke, Wilhelm Kuckshinrichs

#### Firm self-generation decision and outage losses: evidence from emerging and developing Asian countries

Presenter: Anam Shehzadi, University of Kassel, Germany

Authors: Anam Shehzadi, Heike Wetzel

#### Liberalisation of Electricity Market in Bulgaria in the context of the challenges of the European Green Deal and the geopolitics of the European energy transformation

Presenter: Lyubomira Gancheva, Sofia University 'St. Kliment Ohridski', Bulgaria

Faculty of Economics and Business Administration  
Author: Lyubomira Gancheva

## **19. Pathway to transition: the cooperation role**

*Chair:* **Cecilia Camporeale**, ENEA, Italy

### **ENEA for Development Cooperation**

*Presenter:* Valentina Gentile, ENEA ISV-FUND, Italy

*Authors:* Valentina Gentile, Carla Costigliola, Paola Cicchetti

### **Experiences and challenges for solar energy in MENA Region**

*Presenter:* Simona De Iuliis, ENEA TERIN-STIS, Italy

*Author:* Simona De Iuliis

### **Renewable energy potential maps for Lesotho**

*Presenter:* Massimo D'Isidoro, ENEA SSPT-MET-INAT, Italy

*Authors:* Massimo D'Isidoro, Lina Vitali, Francesco Pasanisi, Gaia Righini, Mabafokeng Mahahabisa, Mosuoe Letuma, Muso Raliselo, Mokhethe Seithleko.

### **meetMED II: Regional Cooperation for an Energy Efficient Future**

*Presenter:* Corinna Viola, ENEA DUEE-SPS-MPE, Italy

*Authors:* Corinna Viola, Alicia Tsitsikalis

### **Renewable Energy in Djibouti: a Political, Technical and Economic Assessment**

*Presenter:* Cecilia Camporeale, ENEA SSPT-STIS, Italy

*Authors:* Cecilia Camporeale, Massimo Angelone, Giacomo Pallante, Marco Stefanoni

## **20. Energy and Carbon Market**

*Chair:* **Lu-Tao Zhao**, Beijing Institute of Technology, China

### **Hodrick–Prescott filter-based hybrid ARIMA–SLFNs model for carbon price forecasting**

*Presenter:* Zhao-Rong Huang, Shenzhen University, China

*Authors:* Zhao-Rong Huang, Quan-De Qin

### **Analysis on the current situation of China's power system reform**

*Presenter:* Yu-Zhu Wang, North China Electric Power University, China

*Author:* Yu-Zhu Wang, Jin-Liang Zhang

### **The impact of the global stock and energy market on carbon market: a perspective from EU ETS**

*Presenter:* Zi-Jie Wang, Peking University, China

*Authors:* Zi-Jie Wang, Lu-Tao Zhao

### **Analysis of Key Factors Influencing Carbon Market from the time-varying perspective : evidence with a Markov-switching VAR approach**

*Presenter:* Hui Hu, University of Science and Technology Beijing, China

*Authors:* Hui Hu, Ming-Fang Li

## **13.20 -14.20 Break**

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14.30 -15.30 **Plenary Session** - 1h.00'

14.20 -14.30 test of the technical settings with the speakers

14.30 -15.30 session

## **The Hydrogen revolution**

*Chair:* **Carlo Andrea Bollino**, AIEE Honorary President, Professor University of Perugia, Italy

**Rami Shabaneh**, Senior Research Associate, Energy Markets & Industrial Development, KAPSARC, Saudi Arabia

**Dina Lanzi**, Head of Technology Development BUH2, Snam, Italy

**Paolo D'Ermo**, General Secretary, WEC Italy

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