



CONTENTS

- 1 President's Message
- 7 How Technological Choices, Existing Portfolios, and Multi-Dimensional Price Risk Affect Power Generation Investments
- 11 Influence Analysis of Wind Power Variation on Generation and Transmission Expansion in U.S. Eastern Interconnection
- 15 A Systems Approach to Regional Energy Modeling with Smart Grid Integrated Distributed Energy Resources
- 19 The Benefits of Expanding Cross-Border Electricity Cooperation and Trade in South Asia
- 21 The Cost and Value of Renewable Energy: Revisiting Electricity Economics
- 27 Shale Gas Availability, CO₂ Emissions, Electricity Generation Mix and Power Sector Water Use: EMF 31 Scenarios Results for the U.S.
- 31 Market Consequences of Wind Generation Promotion: Towards a Rational Energy Policy
- 35 The Recent Oil Price Decline and M&A in the U.S. Oil and Gas E&P Sectors
- 41 Natural Gas as a Bridge Fuel into a Sustainable Future for Germany
- 47 Calendar

President's Message

Having started to write my Presidential Message, I received the news of another terrorist attack in the center of Ankara with several dozen innocent people waiting for a bus being killed and several dozen injured. An attack not of a much different nature than the strikes in recent months in Paris, Istanbul, Beirut, Bamako, Baghdad and Jakarta. I would like to convey my deepest condolences to the victims of the terror tragedies worldwide, and full solidarity to the families of the victims.

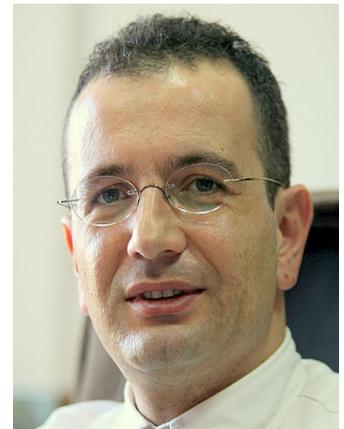
I do see a potential role for IAEE as a policy-neutral organization to make this world a better place. Let me explain. We make use of economic theory and principles to enhance the understanding of all aspects of energy production, transport and use. But economic alternatives often do not get implemented because of political reasons. In other words, our expectation from energy policy to be driven by energy economics is often not realized because of political interference. I therefore see the depolitization of energy as an essential element for world peace and welfare. Hence I would like to urge you to particularly question and elaborate on energy policies that are not in line with energy economics. We need to highlight these issues, discuss the problems with experts from all related disciplines to bring the depolitization of energy ahead. Energy sources, which have often been a trigger of international conflict, can serve as a means for international peace if energy policy decisions are depoliticized and based on economic grounds.

With this motivation I have been working to make IAEE grow in countries and regions with significant energy reserves where we don't have a member base. My trips to Pakistan, Egypt and Azerbaijan last year were part of this mission. Of these, Azerbaijan has materialized as a venue for the First IAEE Eurasian Conference to be held in Baku on August 28-31 this year. I would like to assure you that Baku is one of the safest places to which you could go and invite you to attend this new regional conference on the shore of the Caspian Sea with vast oil & gas reserves.

Before the Baku conference, we have Bergen expecting you for the 39th IAEE International Conference on June 19-22. I have the pleasure to announce that 723 abstracts were received for our Bergen conference, of which 65% have been accepted. Right before the Bergen conference, on 16-18 June, there will be an IAEE Summer School in Bergen on the topic of Financial Management of Energy Price Risk.

Before the Bergen summer school, we have a summer school on Electricity Markets and Regulation taking place on 25-28 May in Istanbul.

Our first conference this year was the 5th IAEE Asian Conference held on 14-17 February in Perth. With over 182 registered delegates Asia's energy challenges have been addressed. I would like to thank IAEE Past President and Conference Chair Peter Hartley for a very successful conference organization.



Editor: David L. Williams

(continued on page 2)

President's Message (continued from page 1)

Finally, I would like to congratulate Christian von Hirschhausen on his appointment as the new Editor-in-Chief of our journal, *Economics of Energy & Environmental Policy*. He will move into this position later this year.

Gurkan Kumbaroğlu

NEWSLETTER DISCLAIMER

IAEE is a 501(c)(6) corporation and neither takes any position on any political issue nor endorses any candidates, parties, or public policy proposals. IAEE officers, staff, and members may not represent that any policy position is supported by the IAEE nor claim to represent the IAEE in advocating any political objective. However, issues involving energy policy inherently involve questions of energy economics. Economic analysis of energy topics provides critical input to energy policy decisions. IAEE encourages its members to consider and explore the policy implications of their work as a means of maximizing the value of their work. IAEE is therefore pleased to offer its members a neutral and wholly non-partisan forum in its conferences and web-sites for its members to analyze such policy implications and to engage in dialogue about them, including advocacy by members of certain policies or positions, provided that such members do so with full respect of IAEE's need to maintain its own strict political neutrality. Any policy endorsed or advocated in any IAEE conference, document, publication, or web-site posting should therefore be understood to be the position of its individual author or authors, and not that of the IAEE nor its members as a group. Authors are requested to include in an speech or writing advocating a policy position a statement that it represents the author's own views and not necessarily those of the IAEE or any other members. Any member who willfully violates IAEE's political neutrality may be censured or removed from membership.



INTERNATIONAL
ASSOCIATION *for*
ENERGY ECONOMICS

IAEE Mission Statement

The International Association for Energy Economics is an independent, non-profit, global membership organisation for business, government, academic and other professionals concerned with energy and related issues in the international community. We advance the knowledge, understanding and application of economics across all aspects of energy and foster communication amongst energy concerned professionals.

We facilitate:

- Worldwide information flow and exchange of ideas on energy issues
- High quality research
- Development and education of students and energy professionals

We accomplish this through:

- Providing leading edge publications and electronic media
- Organizing international and regional conferences
- Building networks of energy concerned professionals

Editor's Notes

As we noted last quarter the response to our call for articles on the electricity market was very gratifying. We conclude our coverage of that subject in this issue and hope you will enjoy reading it as much as we have putting it together.

[Wilko Rohlf](#)s and [Reinhard Madlener](#) discuss decision-making when irreversible investments under uncertainty in long-lived assets such as large-scale power generation units are in the focus. Multi-dimensional price uncertainty complicates modeling significantly, e.g., regarding state-dependent (endogenous) discounting and the consideration of technological progress. We show how real options modeling and portfolio optimization can guide decision-makers much better than standard discounted cash flow calculations.

[Stanton W. Hadley](#) and [Shutang You](#) study the generation and transmission expansion with a high wind power penetration rate in the U.S. Eastern Interconnection system. Results show that modeling more detailed information of wind variation among regions can improve the expansion result significantly.

[Frédéric Babonneau](#), [Michael Caramanis](#) and [Alain Haurie](#) provide an introduction to ETEM-SG, a robust linear programming approach specifically designed for regional energy systems analysis. This model can be used to provide prospective analyses of the long-term (30 years and more) evolution of multi-energy regional energy systems in their transition to sustainability. The model assumes that this transition will occur in a smart city environment. It takes into consideration the constraints associated with intermittent and volatile renewable energy sources connected at the transmission and distribution networks.

[Michael Toman](#) and [Govinda Timilsina](#) posit that improved cross-border electricity cooperation and trade among South Asian countries could contribute to reducing many challenges the sector faces. Experience elsewhere indicates that cooperation can start with limited bilateral arrangements and then expand. Larger gains come from markets for cross-border power trade and effective regional institutions for managing transmission.

[Silvia Pariente-David](#) notes that the rapid penetration of renewable energy, driven by cost declines and climate policy, is creating stress on power systems, inducing costs not captured in the LCOE concept. The article reviews the different metrics to compare intermittent and dispatchable power generation technologies, and concludes that only a holistic approach can account for all effects of renewable penetration on the power system, therefore appropriately measuring renewable cost and value.

[Nadejda Victor](#) and [Christopher Nichols](#) discuss the dependence of the U.S. power sector on water makes electricity generation exposed to weather variability in some regions. Changes in the future electricity generation mix will have important implications for water use. We analyze how shale gas availability affects water usage in the U.S. power sector, investigate whether CO2 mitigation policies would improve or magnify electric sector water reliance and what generation technologies will likely be deployed under water constraints.

[Raul Bajo-Buenstado](#) and [Marin Garcia](#) study the impact of the policies that promote wind generation on the power market. In particular, they focus on the effect on both the generation capacity mix and electricity market prices and provide some policy recommendations that should be taken into account to allow a smooth transition from a fossil-fuel based grid to a sustainable and reliable one.

[Kuang-Chung Hsu](#) and [Zhen Zhu](#) look at how the M&A activities in the U.S. oil and gas E&P sector responded to the low oil price environment during the last year. Their results suggest that lower M&A activity was correlated with lower oil price and provide some conjectures regarding motivations for M&A and suggest M&A activity may pick up as the low price environment stabilizes.

[Nigar Muradkhanli](#) analyses the role of natural gas in the energy infrastructure of Germany. With the Energiewende, Germany has made a substantial decision to move towards a sustainable energy supply over the long term, determining renewable energy as the main source of the future energy supply. He proposes an answer to the question – how the role of natural gas would be changed in the energy mix of Germany following Energiewende?

DLW

With your smart device,
visit IAEE at:



International
Association
for Energy
Economics