Wednesday, June 3

MS152
Equilibria and Optimization for Energy: An Appreciation of Andy Philpott - Part I of III

10:55 AM - 12:25 PM
Room: 50 George Square-G.03

For Part II, see MS179

The past three decades have seen remarkable advances in the use of optimization and equilibrium modeling to understand and design electricity markets, and to support the transition to low-carbon energy systems. Few researchers have influenced this field as significantly as Andy Philpott, whose work spans stochastic programming, equilibrium analysis, and decomposition methods for large-scale energy problems. This minisymposium brings together collaborators and colleagues to build on these contributions. The sessions will explore recent methodological and applied developments inspired by his research, covering topics such as long-term decarbonization pathways, storage investment and operation, equilibrium-based pricing mechanisms, the impacts of renewable variability on market outcomes, simulation–optimization approaches to dispatch, and strategic behavior in stochastic markets. Applications include electricity generation, hydrogen fuels, and market design. Together, these contributions illustrate how optimization and equilibrium analysis provide a powerful framework for guiding investment, operational planning, and policy in the evolving energy sector.

Organizer: Edward J. Anderson
Imperial College London, United Kingdom
Michael C. Ferris
University of Wisconsin-Madison, U.S.

10:55-11:20 How Long-Term Demand Forecasts Shape Optimal Decarbonization Paths abstract

Edward J. Anderson and Beste Akbas, Imperial College London, United Kingdom; Heikki Peura, Aalto University, Finland

11:25-11:50 Long-Run Effects of Variable Renewable Energy abstract

Par Holmberg, Research Institute of Industrial Economics (IFN), Sweden; Andy Philpott, University of Auckland, New Zealand

11:55-12:20 Investment and Operational Planning for An Electric Market with Massive Entry of Renewable Energy abstract

Alejandro Jofre, Universidad de Chile, Chile

MS179
Equilibria and Optimization for Energy: An Appreciation of Andy Philpott - Part II of III

3:15 PM - 4:45 PM
Room: 50 George Square-G.03

For Part I, see MS152

For Part III, see MS207

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Michael C. Ferris
University of Wisconsin-Madison, U.S.

3:15-3:40 Iso-Ne's Energy Imbalance Reserves: An Equilibrium Approach abstract

Golbon Zakeri and Ryan Ent, University of Massachusetts, Amherst, U.S.; Jinye Zhao and Tongxin Zheng, ISO New England, U.S.

3:45-4:10 Strategic Behavior of Risk-Averse Agents under Stochastic Market Clearing abstract

Vincent Leclere, ENPC, France; Andy Philpott, University of Auckland, New Zealand

4:15-4:40 Green Ammonia Demand Estimation for Maritime Transportation abstract

Tito Homem-de-Mello and César Cerda, Universidad Adolfo Ibanez, Chile; Frederic Babonneau and Pierre Cariou, Kedge School of Business, France; Gabriel Fuentes, Norwegian School of Economics, Norway

MS207

Equilibria and Optimization for Energy: An Appreciation of Andy Philpott - Part III of III

4:55 PM - 6:25 PM
Room: 50 George Square-G.03

For Part II, see MS179

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Michael C. Ferris
University of Wisconsin-Madison, U.S.

4:55-5:20 Electricity Dispatch and Pricing Using Agent Decision Rules abstract

Michael C. Ferris, University of Wisconsin-Madison, U.S.; Jacob Mays, Cornell University, U.S.; Andy Philpott, University of Auckland, New Zealand

5:25-5:50 Combining Simulation Optimization and Model-Predictive Control for Economic Dispatch and Planning Problems abstract

Lilianna Gittoes, *Shane G. Henderson*, and Jacob Mays, Cornell University, U.S.

5:55-6:20 Long-Term Storage Optimization in Electricity Markets abstract

Andy Philpott, University of Auckland, New Zealand