

Chiara Lo Prete

Assistant Professor of Energy Economics
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ACADEMIC POSITIONS

July 2014-present: Assistant Professor of Energy Economics
John and Willie Leone Family Department of Energy and Mineral Engineering
The Pennsylvania State University

2012 - 2014: Ziff Environmental Fellow
Harvard University

EDUCATION

2012: Ph.D., Geography and Environmental Engineering
The Johns Hopkins University

2009: M.S., Geography and Environmental Engineering
The Johns Hopkins University

2004: M.A., Energy Economics
Scuola Enrico Mattei

2003: B.A., Economics (summa cum laude)
LUISS University

RESEARCH INTERESTS

- Electricity market design
- Energy economics
- Mathematical programming models of energy markets
- Applied econometrics

WORK EXPERIENCE

2004 - 2007: Energy Analyst
Energy Studies Department, Eni S.p.A., Rome

TEACHING EXPERIENCE

The Pennsylvania State University

- Econometrics II (graduate)
- Introduction to Electricity Markets (undergraduate)
- Introduction to Energy and Environmental Economics (undergraduate)
- Corporate Finance (undergraduate)

The Johns Hopkins University

- Introduction to Applied Econometrics (undergraduate) (Instructor, winter intersession 2012)
- Microeconomics (undergraduate) (Teaching Assistant)

PUBLICATIONS

Journal articles

- N. Guo and C. Lo Prete (2019). “Cross-product manipulation with intertemporal constraints: an equilibrium model”. Accepted for publication, *Energy Policy*.
- C. Lo Prete, W.W. Hogan, B. Liu and J. Wang (2019). “Cross-product manipulation in electricity markets, microstructure models and asymmetric information”. Accepted for publication, *The Energy Journal*.
- C. Lo Prete, N. Guo and U.V. Shanbhag (2019). “Virtual bidding and financial transmission rights: an equilibrium model for cross-product manipulation in electricity markets”. *IEEE Transactions on Power Systems* 34(2), pp. 953-967.
- A. Kleit, C. Lo Prete, S. Blumsack and N. Guo (2019). “Weather or not? Welfare impacts of natural gas pipeline expansion in the Northeastern U.S.” *Energy Systems* 10(3), pp. 593-633.
- C. Lo Prete and B.F. Hobbs (2016). “A cooperative game theoretic analysis of incentives for microgrids in regulated electricity markets”. *Applied Energy* 169, pp. 524-541.
- C. Lo Prete and B.F. Hobbs (2015). “Market power in power markets: an analysis of residual demand curves in California’s day-ahead energy market in 1998-2000”. *The Energy Journal* 36(2), pp. 191-218.
- S. Cano-Andrade, M.R. von Spakovsky, A. Fuentes, C. Lo Prete and L. Mili (2015). “Upper level of a sustainability assessment framework for power system planning”. *Journal of Energy Resources Technology* 137(4), pp. 1-11.
- C. Lo Prete and C.S. Norman (2013). “Rockets and feathers in CO₂-power markets? New evidence from the second phase of the EU ETS”. *Energy Economics* 36, pp. 312-321.
- C. Lo Prete, B.F. Hobbs, C.S. Norman, S. Cano-Andrade, A. Fuentes, M.R. von Spakovsky and L. Mili (2012). “Sustainability and reliability assessment of microgrids in a regional electricity market”. *Energy* 41, pp. 192-202.

Refereed conference proceedings

- Y. Shan, C. Lo Prete, G. Kesidis and D.J. Miller (2017). “A simulation framework for uneconomic virtual bidding in day-ahead electricity markets”. *Proceedings of the 2017 American Control Conference (ACC)*, Seattle, WA, May-24-26.
- C. Lo Prete and B.F. Hobbs (2013). “Modeling the interaction between microgrids and electric utilities: a regulator’s perspective”. *Proceedings of the Fourth IEEE International Conference on Smart Grid Communications*, Vancouver, October 21-24.
- S. Cano-Andrade, M.R. von Spakovsky, A. Fuentes, C. Lo Prete, B.F. Hobbs and L. Mili (2012). “Multi-objective optimization for the sustainable-resilient synthesis/design/operation of a power network coupled to distributed power producers via microgrids”. *Proceedings of ASME International Mechanical Engineering Congress and Exposition*, vol. 6, Energy: Sustainable Technologies, Houston, TX, November 9-15.

Research reports to sponsors

A. Kleit, C. Lo Prete, S. Blumsack, N. Guo and K. Yoo (2014). “Weather or not? Welfare impacts of natural gas pipeline expansion in the Northeastern U.S.” *Report to Williams Company*, p. 1-46.

S. Blumsack, C. Lo Prete, U.V. Shanbhag and M. Webster (2018). Analysis of State Policy Interactions with Electricity Markets in the Context of Uneconomic Existing Resources: a Critical Assessment of the Literature. *Report to PJM Interconnection*, p. 1-53.

MANUSCRIPTS IN PREPARATION

C. Lo Prete, A. Tyagi and C. Hohl. “California’s cap-and-trade program and emission leakage in electricity markets: an empirical analysis”.

A. Gemignani, C. Lo Prete and F. Chiaromonte. “Detecting electricity price manipulation with Hidden Markov Models”.

S. Datta, M. Filippini and C. Lo Prete. “Impact of electricity restructuring on plant generation costs in the United States”.

C. Hohl and C. Lo Prete. “Capacity markets versus energy-only markets: a comparison under increasing wind penetration”.

FUNDED RESEARCH

C. Lo Prete. Electricity market structure, wind penetration and information aggregation. Alfred P. Sloan Foundation. Role: PI. Total awarded: \$250,000. (Funded: November 8, 2018 - December 31, 2020. In collaboration with M. Webster and A. Kwasnica at Penn State).

C. Lo Prete. CRISP 2.0 Type 1: Economic mechanisms for grid resilience against extreme events and natural gas disruptions. National Science Foundation. Role: PI. Total awarded: \$250,000. (Funded: September 1, 2018 - August 31, 2021. In collaboration with D. Kirschen, B. Zhang and L. Pozzo at the University of Washington; total awarded for the collaborative grant: \$750,000).

U.V. Shanbhag, N.R. Chaudhuri, C. Lo Prete, M. Webster, M. Zhu. Scalable techniques for stochastic power flow problems. U.S. Department of Energy. Role: Co-Investigator. Total awarded: \$249,994. (Funded: December 12, 2018 - December 11, 2019).

S. Blumsack, C. Lo Prete, U.V. Shanbhag, M. Webster. Analysis of state policy interactions with electricity markets in the context of uneconomic existing resources. PJM Interconnection, L.L.C. Role: Co-PI. Total awarded: \$75,144. (Funded: October 9, 2017 - October 31, 2018).

S. Blumsack, C. Lo Prete, N.R. Chaudhuri. Smart traction systems for weak power grids. Penn State Institutes for Energy and the Environment. Role: Co-PI. Total awarded: \$25,000. (Funded: September 1, 2017 - August 31, 2018).

C. Lo Prete. Complementarity-based equilibrium models for the analysis of market power in electric distribution networks. E. Willard and Ruby S. Miller Faculty Fellowship, College of Earth and Mineral Sciences. Role: PI. Total awarded: \$50,000. (Funded: September 1, 2016 - August 31, 2018).

C. Lo Prete. Understanding the impacts of water scarcity on the evolution of the U.S. power system. Gladys Snyder Grant Program, College of Earth and Mineral Sciences. Role: PI. Total awarded: \$10,000. (Funded: January 20, 2017 - December 31, 2017).

C. Lo Prete. Market design and price formation in electric distribution networks deploying energy and demand resources. Penn State Institutes for Energy and the Environment. Role: PI. Total awarded: \$25,000. (Funded: September 1, 2015 - August 31, 2016. In collaboration with M. Webster and U.V. Shanbhag at Penn State).

C. Lo Prete. Theory and models of price manipulation through uneconomic bidding in wholesale electricity markets. Wilson Research Initiation Grant, College of Earth and Mineral Sciences. Role: PI. Total awarded: \$10,000. (Funded: July 1, 2015 - June 30, 2016).

A. Kleit, S. Blumsack and C. Lo Prete. The economic impacts of expanding the Transco pipeline. Williams Company. Role: Co-PI. Total awarded: \$91,044. (Funded: May 1, 2014 - July 31, 2014).

CONFERENCE AND WORKSHOP PRESENTATIONS

- 2019: Sandia National Laboratories, Albuquerque, NM (Invited)
Lehigh University, Department of Economics (Invited)
Ohio State University, Department of Integrated Systems Engineering (Invited)
- 2018: Centro de Investigación y Docencia Económicas (CIDE), Mexico City (Invited)
Purdue University, Department of Industrial Engineering (Invited)
University of Texas at Austin, Department of Electrical Engineering (Invited)
Harvard University, Kennedy School of Government (Invited)
IEEE Power & Energy Society General Meeting, Portland, OR
11th International Workshop on Empirical Methods in Energy Economics, Milan, Italy
36th USAEE/IAEE North American Conference, Washington DC
- 2017: 35th USAEE/IAEE North American Conference, Houston, TX
10th International Workshop on Empirical Methods in Energy Economics, Los Angeles, CA
36th Annual Eastern Conference, Annapolis, MD
- 2016: 86th Annual Meetings of the Southern Economic Association, Washington, D.C. (Invited)
34th USAEE/IAEE North American Conference, Tulsa, OK
35th Annual Eastern Conference, Shawnee-on-Delaware, PA
West Virginia University, Department of Economics (Invited)
- 2015: 33rd USAEE/IAEE North American Conference, Pittsburgh, PA
- 2014: 37th IAEE International Conference, New York, NY
INFORMS Annual Meeting, San Francisco, CA
- 2013: 11th Annual International Industrial Organization Conference, Boston, MA
6th International Workshop on Empirical Methods in Energy Economics, Ottawa
4th IEEE International Conference on Smart Grid Communications, Vancouver
Annual Trans-Atlantic Infraday Conference, Washington D.C.
- 2012: American Economic Association Annual Meeting, Chicago, IL
- 2011: INFORMS Annual Meeting, Charlotte, NC
4th International Workshop on Empirical Methods in Energy Economics, Dallas, TX
- 2010: ECOS 2010 Conference, Lausanne
Annual Trans-Atlantic Infraday Conference, Washington D.C.

SUPERVISION OF GRADUATE DISSERTATIONS

- Nongchao Guo (Ph.D., Department of Energy and Mineral Engineering) (July 2014 – July 2018).
- Cody Hohl (Ph.D., Department of Energy and Mineral Engineering) (September 2016 - Present).

UNIVERSITY SERVICE

- Doctoral oral examination committee member (Department of Industrial Engineering, Department of Computer Science and Engineering, and Department of Energy and Mineral Engineering, Penn State)
- Master's thesis committee member (Department of Energy and Mineral Engineering, Penn State)
- Ph.D. candidacy committee member (Department of Energy and Mineral Engineering)
- Faculty advisor in the Energy, Business and Finance undergraduate program (~30 students)
- Member of the EME Graduate Programs Committee
- Member of the EMS Diversity Council

PROFESSIONAL SERVICE AND OUTREACH

- Harvard Electricity Policy Group (HEPG)
- Austin Electricity Conference, University of Texas at Austin
- Program committee member for the 35th USAEE/IAEE North American Conference
- Referee for The Energy Journal, IEEE Transactions on Power Systems, Energy Economics, Networks and Spatial Economics, Energy Policy, Energy, IIE Transactions, Energy Engineering

PROFESSIONAL AFFILIATIONS

Member, International Association of Energy Economists (IAEE)

Member, American Economic Association (AEA)