

## **CHIARA LO PRETE**

Assistant Professor of Energy Economics  
John and Willie Leone Family Department of Energy and Mineral Engineering  
The Pennsylvania State University  
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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

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. (2018). “Weather or not? Welfare impacts of natural gas pipeline expansion in the Northeastern U.S.” *Energy Systems*. Advance online publication, <https://doi.org/10.1007/s12667-018-0292-x>.

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 CO<sub>2</sub>-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 papers

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.

## MANUSCRIPTS UNDER REVIEW

C. Lo Prete, W. W. Hogan, B. Liu and J. Wang. “Cross-product manipulation in electricity markets, microstructure models and asymmetric information”. *Revisions requested*.

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

N. Guo and C. Lo Prete. “Cross-product manipulation with intertemporal constraints: an equilibrium model”. *Under review*.

#### MANUSCRIPTS IN PREPARATION

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

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

#### 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 U.V. Shanbhag 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.N. 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  
11<sup>th</sup> International Workshop on Empirical Methods in Energy Economics, Milan, Italy  
36<sup>th</sup> USAEE/IAEE North American Conference, Washington DC
- 2017: 35<sup>th</sup> USAEE/IAEE North American Conference, Houston, TX  
10<sup>th</sup> International Workshop on Empirical Methods in Energy Economics, Los Angeles, CA  
36<sup>th</sup> Annual Eastern Conference, Annapolis, MD
- 2016: 86<sup>th</sup> Annual Meetings of the Southern Economic Association, Washington, D.C. (Invited)  
34<sup>th</sup> USAEE/IAEE North American Conference, Tulsa, OK  
35<sup>th</sup> Annual Eastern Conference, Shawnee-on-Delaware, PA  
West Virginia University, Department of Economics (Invited)
- 2015: 33<sup>rd</sup> USAEE/IAEE North American Conference, Pittsburgh, PA
- 2014: 37<sup>th</sup> IAEE International Conference, New York, NY  
INFORMS Annual Meeting, San Francisco, CA
- 2013: 11<sup>th</sup> Annual International Industrial Organization Conference, Boston, MA  
6<sup>th</sup> International Workshop on Empirical Methods in Energy Economics, Ottawa  
4<sup>th</sup> 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  
4<sup>th</sup> 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 (~60 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 35<sup>th</sup> 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)