

Ali Daraeepour

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CURRENT POSITION

Postdoctoral Research Associate, Andlinger Center for Energy and Environment, Princeton University. (Since February 2018)

PREVIOUS POSITIONS

Senior Engineer, National Grid Studies Office, Iran Grid Management Company, Tehran, Iran, Feb. 2009–Dec. 2012

Engineering Consultant, Iran Power Systems Engineering Research Center, Tehran, Iran, Jan. 2008 – Feb. 2009

Researcher, Energy Analytics Lab, Semnan University, Semnan, Iran, 2006-2007

EDUCATION

Ph.D. Duke University, Dec. 2017, Energy Economics and Policy

Dissertation: *Efficient design of electricity market clearing mechanisms with increasing levels of renewable generation and carbon price*

M.Sc. Feb. 2008, Semnan University, Semnan, Iran, Power Systems Engineering

Ranked 1st in class at graduation

B.Sc. Aug. 2005, Azad University, Najafabad, Iran, Electrical Engineering-Power

SCHOLARLY PUBLICATIONS

Daraeepour, A. and Patino-Echeverri, D., 2019. Enhancing Institutional Flexibility of Electricity Grids in Carbon Constrained Electricity Grids. In preparation for submission to *Energy Policy*.

Daraeepour, A. and Patino-Echeverri, D., 2017. Economic and Environmental Implications of Different Approaches to Hedge against Wind Production Uncertainty in Electricity Markets: A PJM Case Study. *Energy Economics*, <https://doi.org/10.1016/j.eneco.2019.01.015>.

Daraeepour, A., Kazempour, S.J., Patino-Echeverri, D. and Conejo, A. J., 2016. Strategic Demand-Side Response to Wind Power Integration. *IEEE Transactions on Power Systems*, 31 (2), pp: 3495-3505.

Varkani, A. K., **Daraeepour, A.** and Monsef, H., 2011. A New Self-Scheduling Strategy for Integrated Operation of Wind and Pumped-Storage Power Plants in Power Markets. *Applied Energy*, 88 (12), pp: 5002-5012.

Amjady, N. and **Daraeepour, A.**, 2011. Midterm Demand Prediction of Electrical Power Systems Using a New Hybrid Forecast Technique. *IEEE Trans. on Power Systems*, 26 (2), pp: 755-765.

Amjady, N., **Daraeepour, A.**, and Keynia, F., 2010. Day-Ahead Electricity Price Forecasting by Modified Relief Algorithm and Hybrid Neural Network. *IET Generation Transmission and Distribution*, 4 (3), pp: 432-444.

Amjady, N. and **Daraeepour, A.**, 2009. Design of Input Vector for Day-Ahead Price Forecasting of Electricity Markets. *Expert Systems with Applications*, 36 (10), pp: 12281-12294.

Amjady, N. and **Daraeepour, A.**, 2009. Mixed Price and Load Forecasting of Electricity Markets by a New Iterative Prediction Method. *Electric Power Systems Research*, 79 (9), pp: 1329-1336.

REFEREED CONFERENCE PUBLICATIONS/PRESENTATIONS (* PRESENTER)

- Daraeepour, A.** and Patino-Echeverri, D., 2017, November. Market Design, Welfare, and Environmental Implications of Recognizing Wind Production Uncertainty in PJM. In *Riding the Energy Cycles*, 35th USAEE/IAEE North American Conference, Nov 12-15, 2017. International Association for Energy Economics.
- Daraeepour, A.*** and Echeverri, D.P., 2014, February. Day-ahead wind speed prediction by a neural network-based model. In *Proceedings of Innovative Smart Grid Technologies Conference (ISGT) 2014*, Washington DC, USA.
- Amjady, N. and **Daraeepour, A.***, 2008, July. Day-ahead price forecasting of electricity markets by combination of mutual information technique and neural network. In *Proceedings of IEEE Power and Energy Society General Meeting 2018*, Pittsburgh, PA, USA.
- Amjady, N. and **Daraeepour, A.***, 2008, May. Day-ahead electricity price forecasting using the relief algorithm and neural networks. In *Proceedings of 5th European Electricity Markets (EEM)*, Lisbon, Portugal.

INVITED TALKS AND PRESENTATIONS (* PRESENTER)

- Daraeepour, A.***, and Eric Larson. Design and Evaluation of Electricity Markets for Low Carbon-Intensity Electricity Grids. PSE&G Headquarters, Newark, NJ, August 13, 2018.
- Daraeepour, A.***, D. Patino-Echeverri, and Eric Larson. Economic, and Environmental Implications of Different Approaches to Hedge Against Wind Production Uncertainty in Electricity Markets. PJM Interconnection Headquarters, Valley Forge, PA, July 8, 2018.
- Daraeepour, A.***. Design of Electricity Markets to Efficiently Accommodate Greater Variable Renewable Electricity Generation: A PJM Case Study. Andlinger Center for Energy and Environment's E-affiliates partnership retreat, NYC, NY, June 18, 2018. (Poster)
- Daraeepour, A.*** and Patino-Echeverri, D., 2017. Market design, welfare, and environmental implications of recognizing wind production uncertainty in PJM". In 35th USAEE/IAEE North American Annual Meeting, Houston, TX.
- Daraeepour, A.** and Patino-Echeverri, D.*, 2017. *Economic and environmental implications of different approaches to hedge against wind production uncertainty in electricity markets*. In *Climate and Energy Decision Making Annual Meeting 2017*, Carnegie Mellon University, Pittsburg, PA.
- Daraeepour, A.*** and Patino-Echeverri, D., 2016. *Electricity market clearing with enhanced dispatch of wind producers: market design and environmental implications*. In *INFORMS Annual Meeting 2016*, Nashville, TN.
- Daraeepour, A.***, Li, X. and Patino-Echeverri, D., 2015. *Environmental and economic performance of stochastic market clearing under high wind penetration*. In *INFORMS Annual Meeting 2015*, Philadelphia, PA.
- Bandyopadhyay, R.*, Li, X., **Daraeepour, A.**, and Patino-Echeverri, D., 2015. *Assessing operation of wind-coal hybrid units with flexible carbon capture and storage (CCS) in MISO*. In *INFORMS Annual Meeting 2015*, Philadelphia, PA.
- Daraeepour, A.*** and Patino-Echeverri, D., 2015. *Strategic behavior of a large price-responsive consumer in a wind-integrated electricity pool*. In *Climate and Energy Decision Making Annual Meeting 2015*, Carnegie Mellon University, Pittsburg, PA. (Poster)
- Daraeepour, A.***, Kazempour, S. J., Patino-Echeverri, D. and Conejo, A. J., 2014. *Imperfect demand-side response to wind power integration: a complementarity model*. In *INFORMS Annual Meeting 2014*, San Francisco, CA.
- Daraeepour, A.***, Kazempour, S. J., Patino-Echeverri, D. and Conejo, A. J., 2014. *Wind power integration and consumer behavior: a complementarity approach*. In *Transatlantic Infraday Conference 2014*, Federal Energy Regulatory Commission (FERC), Washington, DC.
- Daraeepour, A.*** and Patino-Echeverri, D., 2014. *Stochastic market clearing in electricity markets with high penetration of wind energy: air emissions reductions and economic savings,"* In *4th Annual Energy Policy Research Conference*, San Francisco, CA.
- A. Daraeepour*** and D. Patino-Echeverri (2014). *Stochastic Market Clearing in Electricity Markets with High Penetration of Wind Energy: Air Emissions Reductions and Economic Savings*. In *IFORS Annual Meeting 2014*, Barcelona, Spain.

TEACHING

Lecturer, Azad University-Tehran
- Electrical Machines I

2009-2010

- Power Systems Analysis 1

MENTORING

Mentor, Duke University	2013-2015
- Mentored 3 graduate students during their Master's thesis/projects	
• Evangelos Denaxas, Graduate Operations Research Program, North Carolina State University Master's thesis: <i>Decomposition of stochastic market clearing problem with Lagrangian Relaxation</i>	2015
• Xin Li, Master of Environmental Management Program, Duke University Master's project: <i>Alternative mechanisms for management of uncertainty in electricity markets</i>	2014
• Adam Cornelius, Master of Environmental Management Program, Duke University Master's project: <i>Assessing the impact of flexible ramp capability products in the Midcontinent ISO</i>	2013

LEADERSHIP, SERVICE, AND PEER-REVIEW ACTIVITIES

Peer-Review (Refereed 60 journals for 13 journals)

- Reviewer, <i>Applied Energy</i>	2010-
- Reviewer, <i>Energy</i>	2010-
- Reviewer, International Journal on Artificial Intelligence Tools	2011-
- Reviewer, <i>International Journal of Electrical Power and Energy Systems</i>	2011-
- Reviewer, <i>Applied Soft Computing</i>	2011-
- Reviewer, <i>IEEE Transactions on Power Systems</i>	2012-
- Reviewer, <i>IET Generation Transmission and Distribution</i>	2013-
- Reviewer, <i>Electric Power Systems Research</i>	2013-
- Reviewer, <i>IEEE Transactions on Sustainable Energy</i>	2014-
- Reviewer, <i>IEEE Transactions on Industrial Informatics</i>	2018-
- Reviewer, <i>The Energy Journal</i>	2016-
- Reviewer, <i>Engineering and Optimization</i>	2016-
- Reviewer, <i>International Transactions on Electrical Energy Systems</i>	2016-
- Reviewer, <i>Cleaner Energy Production</i>	2016-

Leadership

- Alumni, <i>Emerging Leadership Institute (ELI)</i> , Duke University	2017
- Graduate Student Leader, <i>Bass Connections</i> , Duke University	2014-2016
- President/Vice President, <i>Graduate Student Association of Iranians at Duke</i>	2015-2017

Service

- Member, <i>Graduate School Orientation Panel</i> , Duke University	2016-2017
- Member, <i>Training Council</i> , Iran Grid Management Company	2011-2012
- Member, <i>Undergraduate Scientific Committee</i> , Azad University- Najafabad	2003-2004
- Treasurer, <i>IEEE Student Branch</i> , Azad University- Najafabad	

MEMBERSHIPS

- Iranian Society of Electrical Engineers	2009-
- Institute of Electrical and Electronic Engineers- Member (9 years)	2009-2018
- Institute of Electrical and Electronic Engineers-Senior Member	2018-

- Institute for Operations Research and Management Sciences (INFORMS) 2014-
- United States Association for Energy Economics 2016-
- International Association for Energy Economics 2016-

AWARDS AND HONORS

- Duke Environmental Economics Scholars Award, Nicholas Institute for Environmental Policy 2015
- Bass Instructional Fellowship, the Graduate School, Duke University 2017
- Bass Fellowship (online teaching), the Graduate School, Duke University 2018
- Competitive Fellowship for Dissertation Completion, Graduate School, Duke University 2017
- Member of National Foundation of Elites, Tehran, Iran 2011
- Ranked first in class at graduation 2008