

Ali Daraeepour

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CURRENT POSITION

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

EDUCATION

Ph.D. Duke University, 2017, Energy Economics and Policy
Concentration: Electricity market design and renewable energy integration
M.Sc. 2008, Semnan University, Semnan, Iran, Power Systems Engineering
B.Sc. 2005, Azad University, Isfahan, Iran, Electrical Engineering

EXPERIENCE

Senior R&D Engineer, Iran Grid Management Company (IGMC), Tehran, Iran, 2009-2012
Consultant, Iran Power Systems Engineering Research Center (IPSERC), Tehran, Iran, 2008-2009
Researcher, Energy Analytics Lab, Semnan University, Semnan, Iran, 2006-2007

SCHOLARLY PUBLICATIONS

- **Daraeepour, A.** and Patino-Echeverri, D., 2018. Enhancing Institutional Flexibility of Electricity Grids in Carbon Constrained Electricity Grids. In preparation.
- **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. Submitted to *Energy Economics*.
- **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.

CONFERENCE PRESENTATIONS (* PRESENTER)

- **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 Intraday 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.

REFEREED CONFERENCE PUBLICATIONS/PRESENTATIONS (* PRESENTER)

1. **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.
2. 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.
3. 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.

AWARDS AND HONORS

1. Duke Environmental Economics Scholars Award, Nicholas Institute for Environmental Policy 2014-2015
2. Bass Instructional Fellowship, the Graduate School, Duke University Fall 2017
3. Bass Fellowship (online apprentice), the Graduate School, Duke University (declined) Spring 2018
4. Competitive Fellowship for Dissertation Completion, Graduate School, Duke University Summer 2017
5. Member of National Foundation of Elites, Tehran, Iran Fall 2011

LEADERSHIP AND SERVICE

Leadership

Alumni, *Emerging Leadership Institute (ELI)*, Duke University

2017

Graduate Student Leader, <i>Bass Connections</i> , Duke University	2013-2016
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	2003-2004
Treasurer, <i>IEEE Student Branch</i> , Azad University- Najafabad	2002-2003

Editorial (Refereed more than 60 journals for 13 journals)

Reviewer, <i>IEEE Transactions on Power Systems</i>	2012-
Reviewer, <i>Energy</i>	2012-
Reviewer, <i>International Journal of Electrical Power and Energy Systems</i>	2012-
Reviewer, <i>Applied Soft Computing</i>	2012-
Reviewer, <i>Applied Energy</i>	2014-
Reviewer, <i>IET Generation Transmission and Distribution</i>	2014-
Reviewer, <i>Electric Power Systems Research</i>	2014-
Reviewer, <i>IEEE Transactions on Sustainable Energy</i>	2015-
Reviewer, <i>IEEE Transactions on Smart Grids</i>	2015-
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-

MEMBERSHIPS

Institute for Operations Research and Management Sciences (INFORMS)	2014-
United States Association for Energy Economics	2016-
International Association for Energy Economics	2016-
Institute of Electrical and Electronic Engineers (Power and energy society)	2011-

COMPUTER SKILLS

Programming: Proficient in Python, R, MATLAB, VBA; Working knowledge of SQL
Optimization: Proficient in IBM CPLEX OPL, GAMS, MATLAB, and AMPL; Working knowledge of Gurobi
Econometrics and data analysis: Proficient in R, STATA, and MATLAB
Power system simulation: Proficient in PSS/E 30 and DSA Tools (TSAT, SSAT and VSAT)

QUANTITATIVE SKILLS

Optimization: Stochastic programming; Dynamic programming; Nonlinear programming (Newton’s method and Gradient Decent method); Complementarity modeling; Bilevel/Trilevel programming (Mathematical Problem with Equilibrium Constraints and Equilibrium Problems with Equilibrium Constraints); Large-scale optimization (Benders decomposition, dual decomposition).
Statistics and Data analysis: Data cleaning and manipulation; Econometrics of cross sections, panel data, and time series; Stochastic models for uncertainty characterization; Markov Chain Monte Carlo (MCMC); Machine learning (artificial neural networks, support vector machines, hybrid training algorithms); Data mining (filter/wrapper methods for input selection in machine learning processes, nonlinear information theoretic methods).