

Curriculum Vitae



Morteza Rahimiyan

Associate Professor

Energy Systems Planning and Operation (ESPO) Lab.

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Personal Information

He was born in Shahrood, Iran in 1981.

Education

- Visiting researcher, Electric Energy Systems Group, University of Castilla-La Mancha, Ciudad Real, Spain, Jan.-Jul. 2010.
- Ph.D., Electrical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran, 2006-2011.
- M.Sc., Electrical Engineering, Ferdowsi University of Mashhad, Mashhad, Iran, 2003-2006.
- B.Sc., Electrical Engineering, Isfahan University of Technology, Isfahan, Iran, 1999-2003.

Research Interests

- Planning and operation of electric energy systems
- Renewable energy integration and virtual power plants
- Electricity markets
- Uncertainty modeling and forecasting
- Optimization of energy systems under uncertainty

Skills

- Development of computational tools for planning and operation of electric energy systems
- Development of computational tools for participating in electricity markets
- Development of computational tools for forecasting in energy systems

Professional Society Memberships

- IEEE Senior Member since 2021 (M'12-SM'21).
 - Iranian Society of Smart Grid (M'13)
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Professional Experiences

- Executive chair of 18th International Conference on Protection and Automation in Power Systems (IPAPS2024), Shahrood University of Technology, Iran, January 2024.
- Scientific chair of 7th Iran Wind Energy Conference (IWEC2021), Shahrood University of Technology, Iran, 2021.
- Editorial board member of Renewable Energy Research and Application (RERA) journal, 2019-now.
- Vice-Dean of Electrical Engineering Faculty, Shahrood University of Technology, Iran, 2018-2021.
- Head of Power Department at Electrical Engineering Faculty, Shahrood University of Technology, Iran, 2017-2018.
- Director of Energy Systems Planning and Operation (ESPO) Lab., Shahrood University of Technology, Iran, 2016-now.

Honors and Awards

- Best educator award in electrical engineering, Shahrood University of Technology, 2018, 2020, and 2022.
- Best researcher award in industrial applications and projects, Shahrood University of Technology, 2012, 2013 and 2016.
- Best researcher award in electrical engineering, Shahrood University of Technology, 2016.
- Best Ph.D. researcher award in electrical engineering, Ferdowsi University of Mashhad, Dec. 2009 and Dec. 2010.
- Ranked 1st among students of M.Sc program, Jan. 2006.
- Awarded in 6th Ferdowsi Festival for the M.Sc. thesis as 2nd excellent engineering thesis, Dec. 2007.

Publications

Books

- [1] L. Baringo, and M. Rahimiyan, "Virtual Power Plants and Electricity Markets: Decision Making Under Uncertainty", **Springer Nature Switzerland AG**, 2020.

Journal Papers

- [1] S. Dirin, M. Rahimiyan, and L. Baringo, "Optimal Offering Strategy for Wind-Storage Systems under Correlated Wind Production", **Applied Energy**, Volume 333, 120552, March 2023.
- [2] M. H. Araghian, M. Rahimiyan, and M. Zamen, "Robust Integrated Energy Management of a Smart Home Considering Discomfort Degree-Day", **IEEE Transactions on Industrial Informatics**, Volume 19, pp. 10133 -10144, October 2023.
- [3] M. Rezaie-Estabragh, A. Dastfan, and M. Rahimiyan, "Grid-Tied Hybrid AC-DC Microgrid: Finding Optimal Number of Parallel-Connected AC-DC Bidirectional Interfacing Converters", **International Transactions on Electrical Energy Systems**, Volume 2022, 1932818, June 2022.

- [4] S. R. Ebrahimi, M. Rahimiyan, M. Assili, and A. Hajizadeh, "Home Energy Management under Correlated Uncertainties: A Statistical Analysis through Copula", *Applied Energy*, Volume 305, 117753, January 2022.
- [5] M. Azarnia, and M. Rahimiyan, "Robust Volt-Var Control of a Smart Distribution System under Uncertain Voltage-Dependent Load and Renewable Production", *International Journal of Electrical Power & Energy Systems*, Volume 134, 107383, January 2022.
- [6] M. Rezaie-Estabragh, A. Dastfan, and M. Rahimiyan, "Parallel AC-DC Interlinking Converters in the Proposed Grid-Connected Hybrid AC-DC Microgrid; Planning", *Electric Power Systems Research*, Volume 200, 107476, November 2021.
- [7] L Baringo, M Freire, R García-Bertrand, M Rahimiyan, "Offering Strategy of a Price-Maker Virtual Power Plant in Energy and Reserve Markets", *Sustainable Energy, Grids and Networks*, Volume 28, 100558, December 2021.
- [8] A. Abedi, and M. Rahimiyan, "Day-Ahead Energy and Reserve Scheduling under Correlated Wind Power Production", *International Journal of Electrical Power & Energy Systems*, Volume 120, 105931, September 2020.
- [9] I. Amirjani Marvi, M. Rahimiyan, and R. Arjmand, "Real-Time Market Operation under Single-and Dual-Price Settlement Mechanisms in Presence of Correlated Wind Power Production," *Tabriz Journal of Electrical Engineering*, Volume 49, No 4, pp. 1469-1481, 2020.
- [10] M. Rahimiyan, and L. Baringo, "Real-Time Energy Management of a Smart Virtual Power Plant", *IET Generation, Transmission & Distribution*, Volume 13, Issue 11, pp. 2015-2023, June 2019.
- [11] S. Kaabe Pahne Kolaei, and M. Rahimiyan, "Energy Management of Virtual Power Plant Using Stochastic Programming Approach", *Tabriz Journal of Electrical Engineering*, Volume 48, Issue 2, pp. 907-918, 2018.
- [12] B. Sirjani, and M. Rahimiyan, "Wind Power and Market Power in Short-Term Electricity Markets", *International Transactions on Electrical Energy Systems*, Volume 28, Issue 8, August 2018.
- [13] A. Ghasemi, M. Banejad, and M. Rahimiyan, "Integrated Energy Scheduling under Uncertainty in a Micro Energy Grid", *IET Generation, Transmission & Distribution*, Volume 12, Issue 12, pp. 2887-2896, July 2018.
- [14] A. Ghasemi, M. Banejad, and M. Rahimiyan, "Stochastic Energy Scheduling in a Microgrid with Renewables and Electric Vehicles", *Iranian Electric Industry Journal of Quality and Productivity*, Volume 6, Issue 2, pp. 46-55, July 2018.
- [15] A. R. Vahabi, M. A. Latify, M. Rahimiyan, and G. R. Yousefi, "An Equitable and Efficient Energy Management Approach for a Cluster of Price-Responsive Demands", *Applied Energy*, Volume 219, pp. 276-279, June 2018.
- [16] M. Ameri, M. Rahimiyan, and M. A. Latify, "Capacity Withholding Constrained by Operational Limits of Generation under Financial Virtual Divestiture in a Day-Ahead Market", *IEEE Transactions on Power Systems*, Volume 33, Issue 1, pp. 771-780, January 2018.

- [17]S. Kaabe PahneKolaei, and M. Rahimiyan, "Robust Optimization-based Energy Management of Virtual Power Plant by Monitoring Microgrid Contingencies: Single-Line Outage Case Study", *Tabriz Journal of Electrical Engineering*, Volume 47, No 1, pp. 249-261, 2017.
- [18]M. Rahimiyan, and L. Baringo, "Strategic Bidding for a Virtual Power Plant in the Day-Ahead and Real-Time Markets: A Price-Taker Robust Optimization Approach", *IEEE Transactions on Power Systems*, Volume 31, pp. 2676-2687, July 2016.
- [19]R. Arjmand, and M. Rahimiyan, "Statistical Analysis of a Competitive Day-Ahead Market Coupled with Correlated Wind Production and Electric Load", *Applied Energy*, Volume 161, pp. 153-167, January 2016.
- [20]R. Arjmand, and M. Rahimiyan, "Impact of Spatio-Temporal Correlation of Wind Production on Clearing Outcomes of a Competitive Pool Market", *Renewable Energy*, Volume 86, pp. 216-227, February 2016.
- [21]M. Rahimiyan, "A Statistical Cognitive Model to Assess Impact of Spatially Correlated Wind Production on Market Behaviors", *Applied Energy*, Volume 122, Issue 1, pp. 62-72, June 2014.
- [22]M. Rahimiyan, L. Baringo, and A. J. Conejo, "Energy Management of a Cluster of Interconnected Price-Responsive Demands", *IEEE Transactions on Power Systems*, Volume 29, Issue 2, pp. 645-655, March 2014.
- [23]M. Rahimiyan, J. M. Morales and A. J. Conejo, "Evaluating Alternative Offering Strategies for Wind Producers in a Pool", *Applied Energy*, Volume 88, Issue 12, pp. 4918-4926, December 2011.
- [24]H. Rajabi Mashhadi, and M. Rahimiyan, "Measurement of Power Supplier's Market Power Using a Proposed Fuzzy Estimator", *IEEE Transactions on Power Systems*, Volume 26, Issue 4, pp. 1836-1844, November 2011.
- [25]M. Rahimiyan, and H. Rajabi Mashhadi, "An Adaptive Q-Learning Algorithm Developed for Agent-Based Computational Modeling of Electricity Market", *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews*, Volume 40, Issue 5, pp. 547-556, September 2010.
- [26]M. Rahimiyan, and H. Rajabi Mashhadi, "Evaluating the Efficiency of Divestiture Policy in Promoting Competitiveness Using an Analytical Method and Agent-Based Computational Economics", *Energy Policy*, Volume 38, Issue 3, pp. 1588-1595, March 2010.
- [27]M. Rahimiyan, and H. Rajabi Mashhadi, "Supplier's Optimal Bidding Strategy in Electricity Pay-as-Bid Auction: Comparison of the Q-Learning and a Model-Based Approach ", *Electric Power Systems Research*, Volume 78, Issue 1, pp. 165-175, January 2008.
- [28]M. Rahimiyan, and H. Rajabi Mashhadi, "Risk Analysis of Bidding Strategies in an Electricity Pay-as-Bid Auction: A New Theorem", *Energy Conversion and Management*, Volume 48, Issue 1, pp. 131-137, January 2007.

Selected Conference Papers

- [1] E. Ghanaee, and M. Rahimiyan, "Strategic Offering of a Virtual Power Plant in Energy Markets Under Contingency Conditions: A Hybrid Stochastic Robust Optimization

Approach”, **30th International Conference on Electrical Engineering (ICEE 2022)**, pp. 242-248, May 2022.

- [2] A. Mokhtari, M. A. Latify, M. Rahimiyan, “Impacts of Energy Storage Systems on Market Power in a Day-Ahead Market with a Dominant Producer”, **26th Iranian Conference on Electrical Engineering (ICEE 2018)**, pp. 1337-1342, May 2018.
- [3] L. Baringo, and M. Rahimiyan, “Strategic Bidding for a Virtual Power Plant: A Price-taker Robust Optimization Approach”, **INFORMS Annual Meeting**. Philadelphia, Philadelphia, 2015.
- [4] B. F. Talebazloo, M. A. Latify, and M. Rahimiyan, “Ex-ante Analysis of Potential Impact of Transmission Switching on Market Power”, **23rd Iranian Conference on Electrical Engineering (ICEE 2015)**, pp. 1580-1584, May 2015.
- [5] S. Kaabe, M. Rahimiyan, and M. A. Latify, “Impact of Forecast Accuracy on Energy Management of a Virtual Power Plant”, **Smart Grid Conference (SGC 2014)**, pp. 1-6, December 2014.
- [6] A. J. Conejo, L. Baringo, and M. Rahimiyan, “Energy Management of Interconnected Price-Responsive Demands”, **INFORMS Annual Meeting**. Minneapolis, Minnesota (EEUU), 2013.
- [7] A. Ramezani, H. Rajabi Mashhadi and M. Rahimiyan, "Evaluation of Electricity Market Competitiveness based on Estimation of HHI Variation", **25th International Power System Conference**, Tehran, November 2010.
- [8] M. J. Poorsalimi, H. Rajabi Mashhadi and M. Rahimiyan, "Risk Analysis of Bidding strategies for Generation Companies Using Utility function based Q-Learning Algorithm", **25th International Power System Conference**, Tehran, November 2010.
- [9] M. Oloomi, M. Rajabi Mashhadi, M. Rahimiyan *et. al.*, "Design of Efficient Bidding Method for Khorasan Generating Units Based on Price Forecasting and Risk Analysis", **24th International Power System Conference**, Tehran, November 2009.
- [10] M. Rahimiyan and H. Rajabi Mashhadi, "Modeling the Supplier Agent's Risk Strategy based on Fuzzy Logic Combined with the Q-Learning Algorithm", **IEEE International Conference on Computational Intelligence and Security**, Hong Kong, Vol. 1, pp. 159–163, November 2006.
- [11] M. Rahimiyan and H. Rajabi Mashhadi, R. Masoudi, "Annual Expected Budget Estimation and Regulation of Regional Electricity Companies in the Iran's Power Market Based on the Bidding Strategy", **21th International Power System Conference**, Tehran, November 2006.
- [12] R. Ghazi and M. Rahimiyan, "Reactive Power Cost Allocation in Competitive Electricity Environment", **21th International Power System Conference**, Tehran, November 2006.
- [13] H. Rajabi Mashhadi and M. Rahimiyan, "Risk Management and Optimal Bidding in a Pay-as-Bid Auction Based Multi-area Electricity Market", **13th Iranian Conference on Electrical Engineering**, Zanjan, May 2005.

Collaborating in Industrial Projects

- Investigation of the effect of conservation voltage reduction on Khorasan power network load, Khorasan Regional Electric Company, 2023.

- Planning of power systems with high penetration of aggregators, Spain Ministry of Science and Innovation, 2021.
- Preparation of design and installation guideline of distribution networks in megacities based on requirements and features of megacities of Tehran and Mashhad, Niroo Research Institute, 2019-2020.
- Studying and analyzing the integration of renewable energy units and independent producers into Iran wholesale electricity market, Iran Grid Management Company, 2018.
- Modeling and developing algorithm for energy management system in power distribution network based on FAHAM characteristics, Iran Power Generation, Transmission & Distribution Company, 2017.
- Design and implementation of energy management system for smart power microgrid, Shahrood University of Technology, 2017.
- Evaluating structural market power in Iran electricity market, Iran Grid Management Company, 2013.
- Monitoring system design for Iran electricity market, Iran Grid Management Company, 2013.
- Transmission expansion planning in the Iran electricity market for Khorasan network, Khorasan Regional Electric Company, 2007-2008.
- Analysis of probabilistic methods in transmission expansion planning, Khorasan Regional Electric Company, 2006.
- Mid-term planning of KREC's selling electricity to the Iran electricity market: Studying the effect of KREC's bidding price on the cost of Khorasan energy consumption, Khorasan Regional Electric Company, 2005.
- Capacitor placement in Khorasan distribution & transmission network, Khorasan Regional Electric Company, 2004.

Peer Review

- Book reviewer for Elsevier
- Book reviewer for Wiley
- Reviewer for IEEE Transactions on Power Systems
- Reviewer for IEEE Transactions on Smart Grid
- Reviewer for IEEE Transactions on Sustainable Energy
- Reviewer for IET Renewable Power Generation
- Reviewer for Applied Energy
- Reviewer for International Journal of Electrical Power & Energy Systems
- Reviewer for Electric Power Systems Research
- Reviewer for Sustainable Energy, Grids and Networks