In The Name of God

Seyed Hamed Delkhosh

Assistant Professor

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Education:

- **Ph.D:** Electrical Engineering _ Power Systems

  Tarbiat Modares University _ (2015 – 2020)
- **M.Sc:** Electrical Engineering _ Power Systems

  Sharif University of Technology (SUT) _ (2013 – 2015)
- **B.Sc:** Electrical Engineering _ Power Systems

  Amirkabir University of Technology (AUT) _ (2009 – 2013)

Research Interests:

- Cyber-physical-social security
- Renewable energies and storages
- Power system optimization
- Power system frequency control
- Operation and planning of power system
- Operation and planning of energy communities

Courses:

- Power system optimization
- Renewable energies
- Power system operation
- Power system planning
- Energy sources & consumptions

Honors:

- Ranked 5^{th}, 10^{th}, 257^{th} and in the Iranian nation-wide (Konkoor) Ph.D., M.Sc., and B.Sc. university entrance exams

Industrial Work Experiences:

❖ **Tarbiat Modares University - Iran Power System Engineering Research Center (IPSERC)**

Project manager _ 2015 – now

Project	Organization	Position	Time (Months)
Designing a test system for Iranian power grid electricity market	Iran Grid Management Company (IGMC)	Project manager	2022 (18)
Methodology research for power grid operating system localization			2020 (15)
Research and implementation of AGC for the Iranian power grid			2018 (21)
Extended cyber attack-defense test-bed involving EMS functionalities	Tavanir Company		2022 (24)
Developing the state estimator cyber attack-defense test-bed			2019 (30)
Security assessment of TREC power grid in mid-term horizon	Tehran Regional Electric Company (TREC)		2023 (16)
Expansion planning of TREC power grid in long-term horizon			2024 (24)
Research on Primary Frequency Control (PFC) of the Iranian grid	Iran Grid Management Company (IGMC)	Senior researcher	2016 (18)
Developing standards and instructions for measuring and monitoring			2016 (19)
Research on Iranian power wholesale market and proper solutions			2016 (20)
Adequacy and security assessment of Tehran transmission system	Regional Electric Companies (TREC and HREC)		2015 (23)
Voltage assessment and capacitor placement for Hormozgan grid			2015 (18)
Small-signal stability analysis for Hormozgan transmission system			2015 (18)

❖ **Niroo Research Institute (NRI) - Power system monitoring and control**

Senior researcher _ 2016 – 2019

Project	Organization	Position	Time (Months)
Research on future of transmission control centers and presenting suggestions for the Iranian power grid	Iran Grid Management Company (IGMC)	Senior researcher	2018 (18)
Research, development and implementation of the Iranian Own-Built Control Center (IOBCC) program			2016 (24)

Books:

- **H. Delkhosh**, M. Ghaedi, and M. Azimi, 2025. Power system cyber-physical security and resiliency based on data-driven methods. Book chapter in *Data-driven energy management and tariff optimization in power systems. Wiley.*
- **H. Delkhosh**, P. Emami, and M.P. Moghaddam, 2025. Developments toward sustainable energy system operation. Book chapter in *Hosting capacity aspects in distribution networks towards sustainable energy systems. Elsevier.*
- **H. Delkhosh**, and M. Jorjani, 2022. Green approaches for future power systems. Book chapter in *Decentralized frameworks for future power systems. Elsevier.*
- H. Seifi, and **H. Delkhosh**, 2019. Model validation for power system frequency analysis. *Springer.*

Journal Papers:

- A. Mansoori, M. Parsa Moghaddam, and **H. Delkhosh**, 2026. Energy efficiency valuation in peer-to-peer electrical energy trading: A disaggregation approach. *Energy*, *355*, p.141097.
- F. Pirhadi, H. Seifi, and **H. Delkhosh**, 2026. Online incremental learning for detecting false data injection attacks on state estimators handling high renewable penetration and topology changes. *Computers and Electrical Engineering*, 135, p.111167.
- M. Gardashti, **H. Delkhosh**, M. Azimi, S. Gholamnejad, and H. Seifi, 2026. Resilience assessment of cyber-physical power system based on weak interdependency against coordinated attacks considering corrective and expected vulnerabilities (in Farsi). *Tabriz Journal of Electrical Engineering*, *56*.
- A. Moradpour, **H. Delkhosh**, and H. Seifi, 2026. Detecting false data injection attacks on power plants based on voting ensemble learning utilizing data diversification. *Engineering Applications of Artificial Intelligence*, *164*, p.113302.
- P. Khaksar, and **H. Delkhosh**, 2026. Home energy management system based on multi-agent reinforcement learning considering simultaneous participation in energy and flexibility markets (in Farsi). *Iranian Journal of Electrical and Computer Engineering (IJECE)*, 23(1), p.175.
- E. Ommani, **H. Delkhosh**, and H. Seifi, 2025. Optimization-based data recovery after false data injection attacks on state estimators using measurements inertia and calibrated predictions. *IEEE Transactions on Smart Grid,* Early Access (December 2025).
- S. Gholamnejad, **H. Delkhosh**, and H. Seifi, 2025. Performance evaluation of power plants in primary frequency control integrating heuristic parameter extraction optimization and share attribution mechanism. *International Journal of Electrical Power & Energy Systems*, *172*, p.111183.
- S. Nasiri, H. Seifi, and **H. Delkhosh**, 2025. A trust-aware consensus mechanism for post-attack restoration of power system distributed state estimation. *IEEE Transactions on Smart Grid.* Early Access (September 2025).

- M. Azimi, **H. Delkhosh**, and M.K. Sheikh-El-Eslami, 2025. Aggregated index combining deterministic and potential vulnerability for interdependent cyber-physical power system covering multiple attacks. *International Journal of Electrical Power & Energy Systems*, 171, p.110966.
- M. Ghaedi, **H. Delkhosh**, H. Seifi, and M. Shafie-Khah, 2025. Two-stage direct and bi-level indirect coordinated cyber-physical attacks integrating substation outage. *IEEE Transactions on Power Systems*, Early Access (May 2025).
- M. Hajati, M.K. Sheikh-El-Eslami, and **H. Delkhosh**, 2025. Market-based bidirectional reserve and flexibility exchange in a DSO-TSO coordinated framework utilizing capability evaluation. *International Journal of Electrical Power & Energy Systems*, 172, p.111267.
- F. Pirhadi, H. Seifi, and **H. Delkhosh**, 2025. Enhanced detection of false data injection attacks using hybrid clustering-classification for various penetration and distribution levels of renewables. *IET Renewable Power Generation*, 19(1), p.e70157.
- P. Emami, **H. Delkhosh**, and M. Parsa Moghaddam, 2025. Hosting capacity enhancement utilizing small pumped-hydro storages in rural distribution networks. *International Transactions on Electrical Energy Systems*, 2025(1), p.3307334.
- M. Hashemnezhad, **H. Delkhosh**, and M.P. Moghaddam, 2025. Aggregator pricing strategy for community energy management based on multi-agent reinforcement learning considering customer loss or gain. *Sustainable Energy, Grids and Networks*, 41, p.101607.
- **H. Delkhosh**, M. Pazoki, S. Gholamnejad, and H. Seifi, 2025. Enhanced system frequency response model for large-scale grids with a validated compensation block. *Iranian Journal of Science and Technology, Transactions of Electrical Engineering*, pp.1-15.
- M. Azimi, **H. Delkhosh**, and M.K. Sheikh-El-Eslami, 2024. An extended vulnerability assessment method for interdependent cyber-physical power system: fast and precise solution. *IEEE Transactions on Smart Grid*, 16(1), pp.445-448.
- A. Farahani, **H. Delkhosh**, H. Seifi, and M. Azimi, 2024. A new bi-level model for the false data injection attack on real-time electricity market considering uncertainties. *Computers and Electrical Engineering*, 118, p.109468.
- M. Hajati, M.K. Sheikh-El-Eslami, and **H. Delkhosh**, 2024. Maximizing social welfare in local flexibility markets by integrating the value of flexibility loss (VOFL). *Electric Power Systems Research*, 235, p.110840.
- M. Pazoki, M.K. Sheikh-EL-Eslami, and **H. Delkhosh**, 2024. Integrating the dynamic frequency security in the real-time scheduling considering the accurate models and network constraints. *Electrical Engineering (Springer)*, 106(4), pp.4913-4933.
- A. Mansoori, M. Parsa Moghaddam, and **H. Delkhosh**, 2023. A hybrid stochastic-robust approach for power system security-constrained scheduling in the presence of flexibility facilities. *IEEE Transactions on Power Systems*, 39(2), pp.4064-4076.

- S. Nasiri, H. Seifi, and **H. Delkhosh**, 2023. A secure power system distributed state estimation via a consensus-based mechanism and a cooperative trust management strategy. *IEEE Transactions on Industrial Informatics*, 20(2), pp.3002-3014.
- M. Taghavi, **H. Delkhosh**, M. Parsa Moghaddam and A. Sheikhi Fini, 2023. Hosting capacity enhancement of hybrid AC/DC distribution network based on static and dynamic reconfiguration. *IET Generation, Transmission & Distribution*, 17(17), pp.3765-3780.
- M. Nozarian, H. Seifi, M.K. Sheikh-El-Eslami, and **H. Delkhosh**, 2023. Hydro thermal unit commitment involving demand response resources: a MILP formulation. *Electrical Engineering (Springer)*, 105(1), pp.175-192.
- **H. Delkhosh**, and H. Seifi, 2022. Economic valuation of power grid frequency security and the participants share specification. *IEEE Transactions on Power Systems*, 38(2), pp.1487-1500.
- M. Taghavi, **H. Delkhosh**, M. Parsa Moghaddam, and A. Sheikhi Fini, 2022. Combined PV-wind hosting capacity enhancement of a hybrid AC/DC distribution network using reactive control of convertors and demand flexibility, *Sustainability (MDPI)*, 14(13), p.7558.
- T. HajiAbdollah, H. Seifi, and **H. Delkhosh**, 2022. Detection and mitigation of a combined cyber attack on automatic generation control (in Farsi). *Iranian Journal of Electrical and Computer Engineering (IJECE)*, 95(2), p.121.
- M. Jorjani, H. Seifi, A. Yazdian, and **H. Delkhosh**, 2021. An optimization-based approach to recover the detected attacked grid variables after false data injection attack. *IEEE Transactions on Smart Grid*, 12(6), pp.5322-5334.
- M. Sajjadi, H. Seifi, and **H. Delkhosh**, 2021. A new approach for system-wide power system frequency model validation via measurement data. *Engineering Reports (Wiley)*, p.e12446.
- **H. Delkhosh**, and M. Parniani, 2021, A new method for performance evaluation of wind turbines and wind farms using extended capacity factor – case study of Manjil wind farm (in Farsi), *Iranian Journal of Electrical and Computer Engineering (IJECE)*. 19(3), pp.167-179.
- **H. Delkhosh**, and H. Seifi, 2020. Power system frequency security index considering all aspects of frequency profile. *IEEE Transactions on Power Systems*, 36(2), pp.1656-1659.
- **H. Delkhosh**, and H. Seifi, 2020. Technical valuation of generating units for participating in primary frequency control. *International Journal of Electrical Power & Energy Systems*, 118, p.105826.
- **H. Delkhosh**, and H. Seifi, 2019. Quantitative model validation from the frequency perspective considering governor frequency ramp rate and activity range. *International Journal of Electrical Power & Energy Systems*, 107, pp.668-679.

Conference Papers:

- A. Shahabi, **H. Delkhosh**, and M.P. Moghaddam, 2025. Home energy management system based on multi-agent deep reinforcement learning handling the user's thermal preferences. In *10th International Conference on Technology and Energy Management (ICTEM)*. IEEE.
- M. Hashemnezhad, **H. Delkhosh**, A. Shahabi, and M.P. Moghaddam, 2024. Community energy management using MARL: synergy of price-based and incentive-based demand response. In *32nd International Conference on Electrical Engineering (ICEE)*. IEEE.
- P. Emami, **H. Delkhosh**, and M.P. Moghaddam, 2024. Rooftop photovoltaics hosting capacity enhancement of urban distribution networks using water storage in tall buildings. In *11th Iranian Conference on Renewable Energy and Distribution Generation (ICREDG)*. IEEE.
- M. Azimi, **H. Delkhosh**, M. Ghaedi, and H. Seifi, 2023. A bi-level attack-defense model for the forecasting false data injection attacks on the integrated energy systems. In *31th Iranian Conference on Electrical Engineering (ICEE)*. IEEE.
- P. Ramezanzadeh, **H. Delkhosh**, and M. Parsa Moghaddam, 2023. Forecasting the PV panel power based on image processing and historical outputs. In *10th Iranian Conference on Renewable Energy & Distributed Generation (ICREDG)*. IEEE.
- A.M. Moradpour, M.H. Alizadeh, and **H. Delkhosh**, 2023. A new method based on symbolic regression to detect the probability of false data injection attacks on PV generation. In *13th Smart Grid Conference (SGC)*, IEEE.
- M. Ghaedi, N. Eslaminia, **H. Delkhosh**, and M. Parsa Moghaddam, 2022. A defensive approach against pricing false data injection attacks based on incentive-based demand response and network reconfiguration. In *12th Smart Grid Conference (SGC)*. IEEE.
- **H. Delkhosh**, H. Seifi, S. Gholamnejad, and M. Yousefian, 2022. A technical-managerial framework for determining periodic performance indices and operating ranges of power grid frequency. In *30th Iranian Conference on Electrical Engineering (ICEE)*. IEEE.
- M. Hasani, MK. Sheikh-El-Eslami, and **H. Delkhosh**, 2022. A linear model for wind farms preventive maintenance scheduling considering the wind speed uncertainty and electricity market conditions. In *9th Iranian Conference on Renewable Energy & Distributed Generation (ICREDG)*. IEEE.
- S. Nasiri, H. Seifi, and **H. Delkhosh**, 2021. Voltage sag monitoring with limited measurements based on sparse optimization. In *11th Smart Grid Conference (SGC)*. IEEE.
- M. Nozarian, H. Seifi, MK Sheikh-El-Eslami, and **H. Delkhosh**, 2021, Cascaded hydro and thermal unit commitment in day-ahead energy market considering demand response (in Farsi). In *7th International Conference and Energy Technology and Management (IEANC)*
- **H. Delkhosh**, M. Parsa Moghaddam, and M. Ghaedi, 2020. Multi-objective sizing of energy storage systems (ESSs) and capacitors in a distribution system. In *10th Smart Grid Conference (SGC)*. IEEE.
- **H. Delkhosh**, M. Seydali, and H. Seifi, 2016. Application of bat optimization algorithm in optimal power flow. In *24th Iranian Conference on Electrical Engineering (ICEE)*. IEEE.

Review and Editorial Experience:

Associate Editor for:

- Iranian Journal of Science and Technology, Transactions of Electrical Engineering (Springer)

Reviewer for:

- PES Transactions on Power Systems (IEEE)
- PES Transactions on Smart Grid (IEEE)
- International Journal of Electrical Power and Energy Systems (Elsevier)
- Computers and Electrical Engineering (Elsevier)
- Renewable Energy (Elsevier)
- Electric Power Systems Research (Elsevier)
- Engineering Applications of Artificial Intelligence (Elsevier)
- Applied Energy (Elsevier)
- Energy & Buildings (Elsevier)
- Energy Conversion and Management (Elsevier)
- Internet of Things and Cyber-Physical Systems (Elsevier)
- Results in Engineering (Elsevier)
- Energy Sources, Part B: Economics, Planning, and Policy (Elsevier)
- Electrical Engineering (Springer)
- Iranian Journal of Science and Technology, Transactions of Electrical Engineering (Springer)
- Iranian Journal of Electrical and Computer Engineering
- Tabriz Journal of Electrical Engineering