

Mohsen Assili



Personal

- Birth Date: August 1, 1973
- Nationality: Iran

Education

- 2003-2008 PhD in Electrical Engineering, Ferdowsi University, Mashhad, Iran
- 1997-1999 MSc in Electrical Engineering, Ferdowsi University, Mashhad, Iran
- 1991-1995 BSc in Electrical Engineering, Ferdowsi University, Mashhad, Iran

Thesis

- PhD thesis: “Long term dynamic modeling of power market to regulate the capacity payment mechanism”, Supervisor: Dr. M. H. Javidi D. B., Advisor: Dr. R. Ghazi, Examiners: Dr. M. ParsaMoghaddam, Dr. M. Ghazizadeh, Dr. H. RajabiMashhadi, Dr. A. Peyravi.
- MSc thesis: “Reduction of Nonlinear Modal Interaction and Its Effect on Stability of Power System, Supervisor: Dr. H. M. Shanechi
- BSc thesis: “Sparse Programming”, Supervisor: Dr. M. H. Javidi D. B.

Industrial Experiences

- 2009-2012 Mashhad Electricity Generation Management Company– Research and Development advisor
- 2007-2009 [Iran] North East Area Operating Center (NEAOC)
- 2003-2006 Khorasan Regional Electric Company (KREC) –Technical Planning office
- 2001-2003 Khorasan Regional Electric Company (KREC) – Research and standard office
- 2000-2001 FARAB Company (Main contractor of hydro power plants – 2000 MW Karun III project)
- 1996 Astan Quds Razavi - Central organization - Technical department

Industrial Research Experiences

- 2022 Development of Binding Guidelines for the Design and Construction of Distribution Networks in Metropolises Based on the Needs and Characteristics of the Cities of Tehran and Mashhad, Niroo Research Institute (NRI). (As main collaborator)
- 2017 The Effect of Increasing Sensitive Loads in Mashhad Electrical Network in Case of Transient Events Such as Voltage Sag – The Case Study of Accident Occurred on March 17, 2016. (As project manager)
- 2015 Study of current, voltage and frequency load shedding schemes running in the world and provide a method applicable in Khorasan power transmission grid according to existing facilities in automatic substations (As project manager)
- 2014 SAM project (National SCADA system), State Estimation module (As project manager)
- 2012 Analyzing of critical equilibrium points for Khorasan region power system from the view of power swing instability for selecting and tuning the Power System Stabilizers (PSS) (As project manager)
- 2007 Study of Electrical Power Swing Phenomena in Khorasan Regional Electric Company (KREC) Network (Research Project)
- 2006 Dynamic parameters identification for one of the units of Toos power plant. (As supervisor)
- 2005 Electricity long term forecasting of Khorasan Region for consumption centers in various branches of consumers (10-years: 2006-2016).
- 2004 An electricity forecasting model for Iran industries. (Research Project)
- 2004 Analyzing the interactions between Binalood wind power plant and Khorasan transmission network. (Research Project)
- 2003 Electricity long term forecasting of Khorasan Region for consumption centers in various branches of consumers (10-years: 2004-2014).
- 2002 Designing and implementing an automatic administrative system for Research committee of Khorasan Regional Electricity Company (KREC).

Academic Experiences

- 2024 Scientific Chair of the 18th International Conference on Protection and Automation in Power Systems (IPAPS 2024)
- 2018-2020 Head of the Power Engineering Department, Shahrood University of Technology, Iran
- 2009- Associate Professor Shahrood University of Technology, Iran
- 2006-2008 Lecturer Shahrood University of Technology, Iran
- 2003-2006 Lecturer Ferdowsi University, Mashhad, Iran

Theses Supervised

1. "Frequency Restoration of Power System Based on Emergency Demand Side Management", Pezhvak Sheikhzadeh Baboli, PhD Thesis, Shahrood University of Technology, 2022.
2. "Security-Based Observability of Distribution Networks Considering Communication Constraints", Amir Bashian, PhD Thesis, Shahrood University of Technology, 2020.
3. "Combination of Data-base and Model-base methods For Investigating Cyber Physical Attacks in Power Networks", Abolfazl Jebeleh, MSc Thesis, Shahrood University of Technology, 2024.
4. "State Estimation of the Electrical Distribution System in the Presence of Renewable Resources", Masoud Vafaeinejad, MSc Thesis, Shahrood University of Technology, 2023.
5. "Hierarchical Multi-Area State Estimation in Power System", Hamid Maddah Dabaghi, MSc Thesis, Shahrood University of Technology, 2023.
6. "Decentralized Multi-Area State Estimation in Power Systems", Hossein Behnami, MSc Thesis, Shahrood University of Technology, 2023.
7. "Optimal Design of Integrated Multi-micro-grids to Enhance the Resiliency against Seismic Risks arising from the Earthquake", Reza Artis, MSc Thesis, Shahrood University of Technology, 2021.
8. "Identification of Inrush Current from Internal Fault using Discrete-Time Energy Separation Algorithm", Seyed Masood Lal Moosavi, MSc Thesis, Shahrood University of Technology, 2021.
9. "Optimal design of a multi-energy system with seasonal storage and demand side management", Mostafa Beheshtinia, MSc Thesis, Shahrood University of Technology, 2021.
10. "Impact Of Human Error on The Optimum Time Interval of Routine Test of Protection System", Armin Mirsamadi, MSc Thesis, Shahrood University of Technology, 2020.
11. "Optimal Operation of Interconnected Energy Hubs Network by Considering Uncertainty", Fateme Kholardi, MSc Thesis, Shahrood University of Technology, 2018.
12. "IDC Energy Management Considering Wind Generation and its Uncertainty in the Restructured Power Market", Nahid Rajabzadeh, MSc Thesis, Shahrood University of Technology, 2018.
13. "Detection of False Data Injection Attacks in State Estimation of Power Networks", Mohammad Amin Yazdanparast, MSc Thesis, Shahrood University of Technology, 2018.
14. "Implementing Reliability Centered Maintenance (RCM) for Traction Inverter System of Mashhad Urban Railway", Hamid Reza Zahmatkesh, MSc Thesis, Shahrood University of Technology, 2018. (Financially supported by Mashhad Urban Railway Corporation)
15. "Developing and Implementing of a State Estimation Algorithm Based on Real Data of Khorasan Transmission Network", Omid Tehranipour, MSc Thesis, Shahrood University of Technology, 2018.
16. "Current balancing of low voltage distribution feeders considering electrical losses", Abdolghaiyoom Ghaza, MSc Thesis, Shahrood University of Technology, 2018.
17. "Evaluation of Using the Microgrids for Controlling the Power Oscillation in Power Systems", Ali asghar Hobeali Khamaneh, MSc Thesis, Shahrood University of Technology, 2017.
18. "Three Phase State Estimation in Unbalanced Distribution Network", Farnaz Ahmadi, MSc Thesis, Shahrood University of Technology, 2016.
19. "Evaluation of Observability for State Estimation of Electrical Distribution Systems Considering Communication Infrastructure of Wireless Sensor Networks (WSNs)", Reza Shirkhani, MSc Thesis, Shahrood University of Technology, 2016.
20. "Energy Management Using Batteries in Regulation of the Computational Workload for Distributed data Centers", Shahin Alizadeh Moghaddam, MSc Thesis, Shahrood University of Technology, 2016.
21. "Load- Frequency Control of Power System with Participation of Wind Farms in Automatic Generation Control (AGC)", Ehsan Vafae Noghahi, MSc Thesis, Shahrood University of Technology, 2016.
22. "Protection Coordination of Over Current Relay in the Presence of Distributed Generation in Distribution Network", Sied Mehdi Hosseini, MSc. Thesis, Shahrood University of Technology, 2016.
23. "Technical-economic modeling of incentive policies for using electrical vehicles and their effects on electricity demand." Seid Ahmad Moosavi, MSc. Thesis, Shahrood University of Technology, 2015.
24. "Investigation on effects of DG sources on load modeling from the view point of transmission network", Moslem Mamizadeh, MSc. Thesis, Shahrood University of Technology, 2015.
25. "Transmission Expansion Planning Considering Renewable Sources and Large-Scale Consumptions in Khaf (Khorasan Razavi Province, Iran) for a Long-Term Horizon.", Khosro Ghaemi, MSc. Thesis,

- Shahrood University of Technology, (Financially supported by Khorasan Regional Electric Company (KREC)), 2015.
26. "Investigation and modeling of mechanisms for demand response programs in smart grids", Morteza Abdollahi, MSc. Thesis, Semnan Science and Research Branch, Islamic Azad University, 2014
 27. "Coordinated connection of electric vehicles to the distribution system", RasoolRabbani Z., MSc. Thesis, Shahrood University of Technology, 2014.
 28. "Short term energy management in microgrids for participating in power market", Ali A. Bastami, MSc. Thesis, Shahrood University of Technology, 2014.
 29. "Feasibility study for using generator of ELIN units in Mashhad power plant as unit turning gear", Mohammad Yousofi S., MSc. Thesis, Shahrood University of Technology, 2014.
 30. "Fuel management of thermal power plants in crisis conditions with consideration of transmission network constraints", Mohammad A. Lasemi, MSc. Thesis, Shahrood University of Technology, 2013
 31. "Modeling and evaluating of using variable frequency drives (VFD) for cooling water pumps (CWP) in a power plant condenser cooling water system", Mohsen Heydari, MSc. Thesis, Shahrood University Of Technology, Supported by Mashhad Electricity Generation Management Company(MEGMC), 2013
 32. "Cost Evaluation of Power Transmitted Limitation to Network for Various Generation Expansions of Mashhad Power Plant", HadiAkbari, MSc. Thesis, Shahrood University of Technology, 2013
 33. "Network Reduction & Power System Dynamic Equivalencing Based on Generator Electrical Distance", HadiLomei, MSc. Thesis, Shahrood University of Technology, 2012.
 34. "Design and allocation of PSS considering the uncertainty on exciter model and its parameters", MeysamRahmatian, MSc. Thesis, Shahrood University of Technology, 2012.
 35. "Market Power Analysis and Calculation of Nash-Cournot Equilibrium in Thermal Electricity Markets", DavoudAbbasi, MSc. Thesis, Shahrood University of Technology, 2012.

Publications

Journals:

1. M. Mohammad-Shafie, M. Assili, and M. Shivaie, "A flexible load-reliant cost-driven framework for peer-to-peer decentralized energy trading of a hydrogen/battery-enabled industrial town in the presence of multiple microgrids," *Applied Energy*, vol. 373, no. 373, p. 123919, Jul. 2024.
2. M. A. Lasemi, S. Alizadeh, M. Assili, Z. Yang, P. T. Baboli, A. Arabkoohsar, A. Raeiszadeh, M. Brand, and S. Lehnhoff, "Energy cost optimization of globally distributed Internet Data Centers by copula-based multidimensional correlation modeling," *Energy Reports*, vol. 9, pp. 631–644, 2023.
3. R. Artis, M. Assili, and M. Shivaie, "A seismic-resilient multi-level framework for distribution network reinforcement planning considering renewable-based multi-microgrids," *Applied Energy*, vol. 325, p. 119824, 2022.
4. S. M. Lal Moosavi, Y. Damchi, and M. Assili, "A new fast method for improvement of power transformer differential protection based on discrete energy separation algorithm," *International Journal of Electrical Power & Energy Systems*, vol. 136, p. 107759, 2022.
5. S. R. Ebrahimi, M. Rahimiyan, M. Assili, and A. Hajizadeh, "Home energy management under correlated uncertainties: A statistical analysis through Copula," *Applied Energy*, vol. 305, p. 117753, 2022.
6. R. Artis, M. Shivaie, and M. Assili, "Multi-level multi-microgrid expansion planning to enhance resilience against seismic risks arising from earthquake," *IEIJQP*, vol. 10, no. 3, pp. 85–96, 2021. (In Persian)
7. P. Sheikhzadeh-Baboli and M. Assili, "A Hybrid Adaptive Algorithm for Power System Frequency Restoration Based on Proposed Emergency Demand Side Management," *IETE Journal of Research*, vol. 69, no. 7, pp. 4618–4630, 2021.
8. S. Ahmadi, A. Dastfan, and M. Assili, "Electric energy saving in urban railways by using energy storage system and optimal speed profiles simultaneously," *Asr-e-Bargh*, vol. 7, no. 14, pp. 37–43, 2020. (In Persian)
9. A. Bashian, M. Assili, and A. Anvari-Moghaddam, "A security-based observability method for optimal PMU-sensor placement in WAMS," *International Journal of Electrical Power & Energy Systems*, vol. 121, p. 106157, 2020.
10. M. A. Lasemi, M. Assili, and A. Hajizadeh, "Multi-objective hydrothermal generation scheduling and fuel dispatch management considering liquid fuel dispatch network modeling," *Electric Power Systems Research*, vol. 187, p. 106436, 2020.
11. S. Vahedi, M. Banejad and M. Assili, "GIS-Based Substation Expansion Planning," in *IEEE Systems Journal*, vol. 15, no. 1, pp. 959-970, March 2021.
12. R. Mirzahosseini, A. Darabi, and M. Assili, "Analytical and experimental analysis of Back EMF waveform of a TORUS-type non-slotted axial flux permanent magnet synchronous machine with shifted rotor," *Measurement*, vol. 156, p. 107620, 2020.

13. A. Mirsamadi, Y. Damchi, and M. Assili, "Impact of human error modeling on failure rate and optimum routine test interval of protection system," *International Journal of Electrical Engineering Education*, vol. 17, no. 1, p. 1734, 2021.
14. R. Mirzahassemi, A. Darabi, and M. Assili, "Magnet shifting for back EMF improvement and torque ripple reduction of a TORUS-type nonslotted axial flux permanent magnet machine," *Int. Trans. Electr. Energy Syst.*, vol. 30, no. 4, e12293, 2020.
15. A. Bashian, M. Assili, A. Anvari-Moghaddam, and J. P. Catalão, "Optimal design of a wide area measurement system using hybrid wireless sensors and phasor measurement units," *Electronics*, vol. 8, no. 10, p. 1085, 2019.
16. A. Asadollahi and M. Assili, "A novel optimal design for electrical transmission pylons considering effects of electromagnetic fields on human body," *J. Iranian Assoc. Electr. Electron. Eng.*, vol. 17, no. 4, pp. 27–35, 2020.
17. A. Bashian, M. Assili, A. Anvari-Moghaddam, and O. R. Marouzi, "Co-optimal PMU and communication system placement using hybrid wireless sensors," *Sustainable Energy, Grids and Networks*, vol. 19, p. 100238, 2019.
18. R. Mirzahassemi, A. Darabi, and M. Assili, "An analytical formula for selecting the feeding voltage and frequency in a TORUS-type nonslotted axial flux permanent magnet machine design," *Turk. J. Electr. Eng. Comput. Sci.*, vol. 27, no. 3, pp. 2295–2308, 2019.
19. S. Ahmadi, A. Dastfan, and M. Assili, "Energy saving in metro systems: Simultaneous optimization of stationary energy storage systems and speed profiles," *J. Rail Transport Planning & Management*, vol. 8, no. 1, pp. 78–90, 2018.
20. R. Mirzahassemi, A. Darabi, and M. Assili, "An analytical approach and finite element evaluation of leakage fluxes of the PMs in a non-slotted axial flux permanent magnet machine," *COMPEL: The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, vol. 37, no. 6, pp. 2137–2154, 2018.
21. S. Ahmadi, A. Dastfan, M. Assili, "Increasing Energy Efficiency in Urban Rail Transit by Integrated Speed Profile Optimization and Traveling Time Distribution", *Iranian Electric Industry Journal of Quality and Productivity (IEIJQP)*, vol. 6, no. 11, pp. 54-64, 2017. (In Persian)
22. S. Ahmadi, A. Dastfan, M. Assili, "Improving Energy-Efficient Train Operation in Urban Railways: Employing the Variation of Regenerative Energy Recovery Rate", *IET Intelligent Transport Systems*, vol. 11, no. 6, August 2017.
23. H. Lomei, M. Assili, D. Sutanto, M. Muttaqi, "A New Approach to Reduce the Non-Linear Characteristics of a Stressed Power System by Using the Normal Form Technique in the Control Design of the Excitation System", *IEEE Transaction on Industry Applications*, vol. 53, no. 1, pp. 492-500, 2017.
24. M. A. Lasemi, M. Assili, M. R. Baghayipour, "Modification of multi-area economic dispatch with multiple fuel options, considering the fuelling limitations" *IET Generation, Transmission & Distribution Journal*, vol. 8 no. 6, pp. 1098-1106, June 2014.
25. M. Assili, M. Hossein Javidi D.B., Reza Ghazi, "An improved mechanism for capacity payment based on system dynamics modeling for investment planning in competitive electricity environment," *Energy Policy*, vol. 36, pp. 3703-3713, 2008.

Conferences:

1. A. Bashian, M. Assili, and A. Anvari-Moghaddam, "Optimal placement of PMUs and related sensor-based communication infrastructures for full observability of distribution networks," 2020 IEEE Power & Energy Society General Meeting (PESGM), 2020, pp. 1–5.
2. M. A. Lasemi, M. Assili and A. Hajizadeh, "Smart Energy management of Thermal Power Plants by Considering Liquid Fuel Dispatching System Modeling," 2018 Smart Grid Conference (SGC), Sanandaj, Iran, 2018, pp. 1-6.
3. F. Kholardi, M. Assili, M. A. Lasemi and A. Hajizadeh, "Optimal Management of Energy Hub with Considering Hydrogen Network," 2018 International Conference on Smart Energy Systems and Technologies (SEST), Sevilla, 2018, pp. 1-6.
4. S. R. Ebrahimi, M. Assili, M. Rahimian, A. Hajizadeh, "Load Management in a Residential Zero Energy Building Using Mixed Integer Linear Programming", 4th International Conference on Solar Energy (ICESE-2017), University of Tehran, Tehran, Iran, 24-25 November 2017.
5. H. Lomei, D. Sutanto, K. M. Muttaqi and M. Assili, "A new approach to reduce the non-linear characteristics of a stressed power system by using the normal form technique in the control design of the excitation system," 2015 IEEE Industry Applications Society Annual Meeting, Addison, TX, 2015, pp. 1-6.
6. H. Lomei, D. Sutanto, K. M. Muttaqi and M. Assili, "A new approach to reduce the expected energy not supplied in a power plant located in a non-expandable transmission system," 2015 Australasian Universities Power Engineering Conference (AUPEC), Wollongong, NSW, 2015, pp. 1-6.

7. S. Vahedi, M. Banejad and M. Assili, "Pseudo-dynamic substation expansion planning using hybrid heuristic and genetic algorithm," 2015 4th International Conference on Electric Power and Energy Conversion Systems (EPECS), Sharjah, 2015, pp. 1-6.
8. S. Vahedi, M. Banejad and M. Assili, "Optimal location, sizing and allocation of subtransmission substations using K-means algorithm," 2015 IEEE Power & Energy Society General Meeting, Denver, CO, 2015, pp. 1-5.

In Persian:

9. H. Nafisi, S. M. Mohiti, S. Shahi, and M. Assili, "Smart Recloser Siting for the Sample Feeder in Golestan Province to Improve Reliability," 18th International Conference on Protection and Automation in Power Systems (IPAPS 2024), Shahrood, Iran, 2024.
10. F. Kholardi, M. Assili, M. A. Lasemi, "Operation of Integrated Multi-Carrier Energy Systems consists of a Hydrogen Network considering a Hub Energy Concept", 33th International Power System Conference (PSC 2018), Tehran, Iran.
11. R. Mirzahosseini , A. Darabi , M. Assili, "Investigation on effects of frequency and number of pole-pairs on the efficiency and power density of a non-slotted axial flux permanent magnet machine", 26st Iranian Conference on Electrical Engineering (ICEE2018), Mashhad, Iran.
12. H. R. Zahmatkesh, M. Assili, A. M. Moshiri, "Maintenance implementation based on Reliability (RCM) for PI subsystem of traction inverter of Mashhad urban railway", 26st Iranian Conference on Electrical Engineering (ICEE2018), Mashhad, Iran.
13. H. R. Zahmatkesh, M. Assili, A. M. Moshiri, "Maintenance implementation based on Reliability (RCM II) for ECON subsystem of traction inverter of Mashhad urban railway", 12th Condition Monitoring & Fault Diagnosis Conference (CMFD2018), Tehran, Iran.
14. "M. A. Lasemi, M. Assili and A. Hajizadeh, "Power Generation Management with Crisis Management Approach and Economic Operation in Critical Condition of Power Grid", 26st Iranian Conference on Electrical Engineering (ICEE2018), Mashhad, Iran.
15. R. Mirzahosseini , A. Darabi , M. Assili, "Determination of the optimal value of frequency in the design of a non-slotted axial flux permanent magnet machine considering temperature distribution calculations", 32th International Power System Conference (PSC 2017), Teheran, Iran.
16. Ali A. Bastami, M. Assili, "A linearized daily planning model for distribution companies to participate in energy and reserve market", 2th Regional Conference and Exhibition on Electricity Distribution (CIRED - Iran LC), Tehran, Iran, Jan. 2014.
17. Ali A. Bastami, M. Assili, "maximizing the profit of an electricity distribution company by simultaneous implementation of demand response programs and participation in the energy market", Smart Grids Conference (SGC2013), Tehran, Iran.
18. Ali A. Bastami, M. Assili, "Short term energy management in microgrids for participating in power market", 28th International Power System Conference (PSC 2013), Teheran, Iran.
19. M. A. Lasemi, M. Assili, "Second fuel planning of thermal power plants in natural-gas shortage crisis considering the constraints of power transmission network ", 21st Iranian Conference on Electrical Engineering (ICEE2013), Mashhad, Iran.
20. H. Akbari, M. Assili, "A new algorithm to detect weak connection of a generation unit to a grid using contingency analysis", 21st Iranian Conference on Electrical Engineering (ICEE2013), Mashhad, Iran.
21. M. Rahmatian, M. Assili, H. Lomei, M. RajabiMashhadi, "Improvement the frequency response method for tuning the power system stabilizer (PSS) considering exciter phase shift index", The First Electric Industry Automation Congress (EIAC2013), Mashhad, Iran.
22. M. Rahmatian, M. Assili, H. Lomei, M. RajabiMashhadi, "Investigation on effects of exciter model and parameters uncertainty on tuning the power system stabilizer (PSS)", 5th Electric Power Generation Conference, Ahwaz, Iran, 2013.
23. H. Akbari, M. Assili, "Estimating the energy limited to transmit for different generation capacity of a specific unit using stochastic contingency analysis", 27th International Power System Conference (PSC 2012), Iran.
24. M. Assili, M. Rajabi Mashhadi, D. Yazdanpanah "Study and analysis of effect of the power transmitted between Khorasan and Iran networks on occurrence of electrical power swings", 24th International Power System Conference (PSC 2009), Iran.
25. M. Assili, M. H. Javidi D. B., R. Ghazi, "Assessing the role of capacity payment contracts in electricity market long-term stability", 23th International Power System Conference (PSC 2008), Iran. (in Persian)
26. M. Assili, M. RajabiMashhadi, M. H. Javidi D. B., "Fuel scheduling of thermal power plants in crisis conditions" 23th International Power System Conference (PSC 2008), Iran.
27. M. Assili, "Method of Demand Realization Factors for demand forecasting of large consumers", 11th Electric Power Distribution Conference (EPDC 2006), Iran.

Software Skills

- Microsoft Office
- FORTRAN, Visual Basic, C (good skills)

- MATLAB (proficient and experienced)
- DIgSILENT power factory (good knowledge)
- PSSE (basic skills)

Interests

- Power system operation and control
- Power system dynamics and security
- Power system restructuring
- Generation and power plant technologies
- Energy economics
- Smart grid
- Cyber-Physical security of power system

Awards

- Ranked one among MS students on graduation (1997-1999)
- Honors for the best Article in engineering field, Research week in Khorasan Razavi Province, Iran, Granted by the Khorasan governor for Research (2010)

Professional Qualifications/Memberships

- IEEE, Member (2009-)
- IEEE, Student Member (1999,2008)
- Iranian Association of Electrical and Electronics Engineers (IAEEE), Member (2001-)

Languages

- Persian, English, Arabic (poor).

References

- Prof. M. H. Javidi D.B. Electrical department, Faculty of Engineering, Ferdowsi University of Mashhad, Iran, h-javidi@ferdowsi.um.ac.ir
- Prof. H. M. Shanechi Electrical and Computer Engineering, Illinois Institute of Tech., U.S.A, shanechi@iit.edu