MOJDEH KHORSAND

School of Electrical, Computer and Energy Engineering
PO Box 875706 GWC 206
Arizona State University, Tempe, AZ 85287-5706

mojdeh.khorsand@asu.edu
(480) 965-0787
Engineering Research Center (ERC) 525

Academic Appointment

Arizona State University **Aug. 2024-Present**
Associate Professor
School of Electrical, Computer, and Energy Engineering

Arizona State University **Aug. 2017- Aug. 2024**
Assistant Professor
School of Electrical, Computer, and Energy Engineering

Education

Ph.D. in Electrical Engineering (Electric Power and Energy Systems) **Aug. 2012-May 2017**
Advisor: Professor Vijay Vittal
Arizona State University, Tempe, AZ
Dissertation: Analytical Approaches for Identification and Representation of Critical Protection Systems in Transient Stability Studies

M.Sc. in Electrical Engineering (Electric Power Systems) **Sep. 2008-Sep. 2010**
Iran University of Science and Technology, Tehran, Iran
Thesis: Determining the Optimal Amount of Reserves Considering Wind Power Generation in Power System Using Stochastic Optimization

B.Sc. in Electrical Engineering (Electric Power Systems) **Sep. 2003-Sep. 2007**
Mazandaran University, Mazandaran, Iran

Publications

Journal publications:

[J30] Z. Hassan, R. Ayyanar, V. Vittal, and **M. Khorsand**, "Development and Validation of Unbalanced RMS Models for Large Scale Renewable Energy Systems," *IEEE Transactions on Power Systems*, Accepted for Publications, October 2026.

[J29] G. V. Iswaran, V. Vittal, and **M. Khorsand**, "Analysis of the efficacy of RMS-EMT co-simulation in capturing the response of IBR-rich grids," *Electric Power Systems Research,* Accepted 22 June 2026.

[J28] S. Ostovar, N. P. Srinivas, **M. Khorsand**, A. Mondal, N. Singhal, I. Krad, and A. Saad, "Bidding strategy algorithm for distributed energy resource aggregators: participation in day-ahead and real-time energy and ancillary service markets," International Journal of Electrical Power & Energy Systems, September 2026.

[J27] H. K. A. Parthasarathy, Z. Soltani, and **M. Khorsand**, "Unified Mode Selection Framework for Real-Time VAr Optimization Tool in Unbalanced Distribution Systems." *IET Generation, Transmission & Distribution* 20, no. 1, 2026. https://doi.org/10.1049/gtd2.70366

[J26] M. He, M., **M. Khorsand**, "Causal relationship discovery and causal-oriented approaches for enhanced performance and interpretability in prediction of prosumer behavior and demand flexibility," *IET Gener. Transm. Distrib.* 19, 2025. https://doi.org/10.1049/gtd2.13319

[J25] G. V. Iswaran, V. Vittal, **M. Khorsand**, D. Ramasubramanian, P. Mitra and J. C. Boemer, "Comparison of Positive-Sequence Analysis With EMT Analysis for Integrated Transmission and DER-Rich Distribution Systems," in *IEEE Transactions on Power Systems*, vol. 41, no. 4, pp. 2812-2825, July 2026, doi: 10.1109/TPWRS.2026.3652811.

[J24] H. K. A. Parthasarathy, M. Ghaljehei, Z. Soltani and **M. Khorsand**, "Qualification and Disqualification of Aggregator's Energy and Ancillary Service Awards in Wholesale Markets," in *IEEE Open Access Journal of Power and Energy*, vol. 13, pp. 88-101, 2026, doi: 10.1109/OAJPE.2026.3655590.

[J23] G. V. Iswaran, S. Thakar, S. Nekkalapu, V. Vittal and **M. Khorsand**, "Development of an Application-Directed Distribution Network Equivalent for Transmission Planning Studies," in *IEEE Transactions on Power Systems*, August 2026, doi: 10.1109/TPWRS.2026.3722057.

[J22] M. He, **M. Khorsand**, "Behavior-aware assessment of demand response participation in power systems using causal artificial intelligence," Electric Power Systems Research, vol. 237, 2024.

[J21] Z. Soltani, **M. Khorsand** and S. Ma, "Current–Voltage Unbalanced Distribution AC Optimal Power Flow for Advanced Distribution Management System Applications,"' in *IEEE Open Journal of Industry Applications*, vol. 5, pp. 155-167, 2024, doi: 10.1109/OJIA.2024.3367547.

[J20] M. Chen, S. Ma, Z. Soltani, R. Ayyanar, V. Vittal and **M. Khorsand**, "Optimal Placement of PV Smart Inverters With Volt-VAr Control in Electric Distribution Systems," in *IEEE Systems Journal*, vol. 17, no. 3, pp. 3436-3446, Sept. 2023, doi: 10.1109/JSYST.2023.3256121

[J19] M. He, Z. Soltani, M. Ghaljehei, M. Esmaili, S. Ma, M. Chen, **M. Khorsand**, R. Ayyanar, and V. Vittal, "A SOCP-based ACOPF for Operational Scheduling of Three-phase Unbalanced Distribution Systems and Coordination of PV Smart Inverters," *IEEE Transactions on Power Systems, vol. 39, no. 1, pp. 229-244, Jan. 2024, doi: 10.1109/TPWRS.2023.3236881.*

[J18] M. He, Z. Soltani, **M. Khorsand**, A. Dock, P. G. Malaty, and M. Esmaili, "Behavior-aware Aggregation of Distributed Energy Resources for Risk-Aware Operational Scheduling of Distribution Systems," *Energies*, 2022, https://doi.org/10.3390/en15249420.

[J17] R. Vakili and **M. Khorsand**, "A Machine Learning-Based Method for Identifying Critical Distance Relays for Transient Stability Studies", *Energies*, 2022; https://doi.org/10.3390/en15238841.

[J16] Z. Soltani, S. Ma, **M. Khorsand**, and V. Vittal, "Simultaneous Robust State Estimation, Topology Error Processing, and Outage Detection for Unbalanced Distribution Systems," *IEEE Transactions on Power Systems*, 2022.

[J15] Z. Soltani and **M. Khorsand**, "Real-Time Topology Detection and State Estimation in Distribution Systems Using Micro-PMU And Smart Meter Data," *IEEE Systems Journal*, 2021.

[J14] K. Montano-Martinez, S. Thakar, S. Ma, Z. Soltani, V. Vittal, **M. Khorsand**, R. Ayyanar, and C. Rojas, "Detailed Primary and Secondary Distribution System Model Enhancement Using AMI Data", IEEE Open Access Journal of Power and Energy, Nov. 2021.

[J13] M. Ghaljehei and **M. Khorsand,** "Day-ahead Operational Scheduling with Enhanced Flexible Ramping Product: Design and Analysis," *IEEE Transactions on Power Systems*, Sept. 2021.

[J12] R. Vakili, **M. Khorsand**, V. Vittal, B. Robertson, P. Augustin, "An Algorithmic Approach for Identifying Critical Distance Relays for Transient Stability Studies," *IEEE Open Access Jour. of Power and Energy*, vol.8, 2021.

[J11] M. Ghaljehei and **M. Khorsand,** "Representation of Uncertainty in Electric Energy Market Models: Pricing Implication and Formulation," *IEEE Systems Journal,* Oct. 2020.

[J10] S. Kamali, T. Amraee, and **M. Khorsand**, "Intentional Power System Islanding against Cascading Outages Using Transient Energy Function Method," *IET Generation, Transmission & Distribution*, vol. 14, Oct. 2020.

[J9] Y. Wang, V. Vittal, **M. Khorsand**, and C. Singh, "Composite System Reliability Evaluation with Essential Reliability Services Assessment of Wind Power Integrated Power Systems," *IEEE Open Access Journal of Power and Energy,* vol. 7, Oct. 2020.

[J8] Y. Wang, V. Vittal, **M. Khorsand**, and C. Singh, "Probabilistic Reliability Evaluation Including Adequacy and Dynamic Security Assessment," *IEEE Transactions on Power Systems,* vol. 35, no. 1, Jan. 2020. ***Technical Committee, Analytic Methods for Power Systems (AMPS), Best Paper Award.***

[J7] **M. Abdi-Khorsand** and V. Vittal, "Identification of Critical Protection Functions for Transient Stability Studies," *IEEE Transactions on Power Systems,* vol. 33, no. 3, pp. 2940 - 2948, May 2018.

[J6] **M. Abdi-Khorsand** and V. Vittal, "Modeling Protection Systems in Time-Domain Simulations: A New Method to Detect Mis-operating Relays for Unstable Power Swings," *IEEE Transactions on Power Systems,* vol. 32, no. 4, pp. 2790-2798, Jul. 2017.

[J5] X. Li, M. Sahraei-Ardakani, P. Balasubramanian, **M. Abdi-Khorsand**, K. W. Hedman, and R. Podmore, "Real-Time Contingency Analysis with Corrective Transmission Switching," *IEEE Transactions on Power Systems*, vol. 32, no. 4, pp. 2604 - 2617, Jul. 2017.

[J4] **M. Abdi-Khorsand**, M. Sahraei-Ardakani, and Y. Al-Abdullah, "Corrective Transmission Switching with *N*-1-1 Contingency Analysis," *IEEE Transactions on Power Systems,* vol. 32, no. 2, pp. 1606-1615, Mar. 2017.

[J3] M. Sahraei-Ardakani, X. Li, P. Balasubramanian, K. W. Hedman, and **M. Abdi-Khorsand**, "Real-Time Contingency Analysis With Transmission Switching on Real Power System Data," *IEEE Transactions on Power Systems,* vol. 31, no. 3, pp. 2501-2502, May 2016.

[J2] Y. Al-Abdullah, **M. Abdi-Khorsand**, and K. W. Hedman, "The Role of Out-of-Market Corrections in Day-Ahead Scheduling," *IEEE Transactions on Power Systems*, vol. 30, no. 4, pp. 1937-1946, Jul. 2015.

[J1] **M. Abdi-Khorsand** and H. Heydari, "Multiobjective Augmented Eps-constraint Optimization for Economic/Environmental Stochastic Unit Commitment in Power Systems with High Penetration of Wind Power," *International Review of Electrical Engineering*, vol. 5, no. 4, Aug. 2010.

Conference publications (peer reviewed):

[C31] A. Esmaeili-Nezhad and **M. Khorsand**, "Residential Energy Hub Flexibility Assessment Under PV Uncertainty Using ML-Based Forecasting," *IEEE PES Grid Edge Technologies Conference*, 2027.

[C30] A. Esmaeili-Nezhad, R. Cheshomi and **M. Khorsand**, "A Hybrid Causal Discovery Approach for Stability-Oriented Critical Contingency Selection," *2026 IEEE Power & Energy Society General Meeting (PESGM)*, Montreal, QC, Canada, 2026, pp. 1-5, doi: 10.1109/PESGM58988.2026.11693593.

[C29] A. Esmaeili-Nezhad and **M. Khorsand**, "A Causality-Oriented Neural Network Framework for Transient Stability Prediction in Power Systems," *Hawaii International Conference on System Sciences*, January 2026.

[C28] S. Ostovar, N. P. Srinivas, and **M. Khorsand** , "An Appliance-Agnostic Mode Identification Framework via Dynamic Programming Least Squares and Piecewise Regression for Non-Intrusive Load Monitoring," *Hawaii International Conference on System Sciences*, January 2026.

[C27] R. Cheshomi, A. Esmaeili-Nezhad and **M. Khorsand**, "Online Machine Learning-Based Dynamic Security Assessment With Protection Modeling Trained on RMS-EMT Co-Simulation Data," *2025 57th North American Power Symposium (NAPS)*, Storrs, CT, USA, 2025, pp. 1-6, doi: 10.1109/NAPS66256.2025.11272410.

[C26] N. P. Srinivas, S. Ostovar, **M. Khorsand**, A. Mondal, N. Singhal, I. Krad, and A. Saad, "A Day-Ahead Bidding Framework for Renewable-Fed Distributed Energy Resource Aggregators," *2026 IEEE/PES Transmission and Distribution Conference and Exposition (T&D)*, Chicago, IL, USA, 2026, pp. 1-5, doi: 10.1109/TD48022.2026.11562827.

[C25] N. P. Srinivas, S. Ostovar and **M. Khorsand**, "A Data Mining Approach for Load Composition Analysis in Residential Units," *2025 57th North American Power Symposium (NAPS)*, Storrs, CT, USA, 2025, pp. 1-6, doi: 10.1109/NAPS66256.2025.11272295.

[C24] Z. Bagheri, R. Ayyanar, V. Vittal and **M. Khorsand**, "Enhanced Grid Support Through Current Limiting for Inverter-Based Resources Ensuring Compliance with Recent LVRT Grid Codes," *2025 IEEE Power & Energy Society General Meeting (PESGM)*, Austin, TX, USA, 2025.

[C23] H. K. Achuthan Parthasarathy, Z. Soltani and **M. Khorsand**, "Operational DER Scheduling Tool for Unbalanced Distribution Systems Considering Watt-VAr Controllers of PV Smart Inverters," *2023 North American Power Symposium (NAPS)*, Asheville, NC, USA, 2023, pp. 1-6, doi: 10.1109/NAPS58826.2023.10318572.

[C22] Z. Soltani, S. Ma, M. Ghaljehei, and **M. Khorsand**, "Volt-VAr Optimization of PV Smart Inverters in Unbalanced Distribution Systems," *Grid Edge Technologies*, April 2023.

[C21] G. V. Iswaran, R. Vakili and **M. Khorsand**, "Power System Resiliency Against Windstorms: A Systematic Framework Based on Dynamic and Steady-State Analysis," *2022 North American Power Symposium (NAPS)*, 2022.

[C20] M. He and **M. Khorsand**, "Residential Appliance-level Consumption Modeling and Forecasting via Conditional Hidden Semi-Markov Model," 2022 North American Power Symposium (NAPS), 2022.

[C19] G. V. Iswaran, R. Vakili, and **M. Khorsand**, "A Comprehensive Framework based on Dynamic and Steady State Analysis to Evaluate Power System Resiliency to Extreme Weather Conditions," IREP 2022.

[C18] Z. Soltani, S. Ma, M. Ghaljehei, and **M. Khorsand**, "Optimal Scheduling of Distributed Energy

Resources Considering Volt-VAr Controller of PV Smart Inverters," IREP 2022.

[C17] R. Vakili and **M. Khorsand**, "Enhancing Situational Awareness: Predicting Under Frequency and Under Voltage Load Shedding Relay Operations," *2021 North American Power Symposium (NAPS)*, 2021.

[C16] R. Vakili and **M. Khorsand**, "Machine-Learning-based Advanced Dynamic Security Assessment: Prediction of Loss of Synchronism in Generators," *North American Power Symposium (NAPS)*, 2020.

[C15] R. Santoni, A. Chandwani, A. K. Shah, and **M. Khorsand**, "Improving Distribution System Resiliency using Distribution Energy Resources," *North American Power Symposium (NAPS)*, 2020.

[C14] B. Jeon and **M. Khorsand**, "Energy Management System in Naval Submarines," *IEEE Transportation Electrification Conference & Expo (ITEC)*, June 2020.

[C13] M. He, Z. Soltani, and **M. Khorsand**, "Two-Stage Distributed Energy Resources Scheduling via Chance-Constrained AC Optimal Power Flow: A Second-Order Cone Programming Approach," *the IEEE PES General Meeting 2020*.

[C12] M. He and **M. Khorsand**, "A Data-driven based Strategy to Evaluate Participation of Diverse Social Classes in Smart Electric Grids," *North American Power Symposium (NAPS)*, 2019.

[C11] P. Chatterjee, **M. Khorsand**, and K. W. Hedman, "Enhanced Assessment of Power System Behavior during Multiple Contingencies," *North American Power Symposium (NAPS)*, 2018.

[C10] T. Tesfay, M. Jamei, A. Scaglione, **M. Khorsand**, K. Hedman and R. Bazzi, "AVAIL: Assured Volt-Ampere Information Ledger," *IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm)*, 2018.

[C9] X. Li, P. Balasubramanian, **M. Abdi-Khorsand**, A. Korad, and K. W. Hedman, "Effect of Topology Control on System Reliability: TVA Test Case," *CIGRE Grid of the Future Symposium 2014*, pp. 1-8, Oct. 2014.

[C8] **M. Abdi-Khorsand** and K. W. Hedman, "Day-Ahead Corrective Transmission Topology Control," *In Proc. of the IEEE PES General Meeting 2014*, Washington, DC, Jul. 2014.

[C7] Y. Al-Abdullah, **M. Abdi-Khorsand**, and K. W. Hedman, "Analyzing the Impacts of Out-of-Market Corrections," *In Proc. of the 2013 IREP Symposium-Bulk Power System Dynamics and Control–IX (IREP)*, Rethymnon, Greece, Aug. 2013.

[C6] S. A. H. Bahreyni, **M. Abdi-Khorsand**, and S. Jadid, *"*A Stochastic Unit Commitment in Power Systems with High Penetration of Smart Grid Technologies," *In Proc. of the 2nd Iranian Conference on Smart Electrical Grids (ICSG),* Iran, May 2012.

[C5] **M. Abdi-Khorsand** and H. Heydari, "Joint Stochastic Wind-Thermal Generation Scheduling and Emission Reduction Using Multiobjective Augmented Eps-Constraint Algorithm," *In Proc. of the 6th International Conf. on Technical and Physical Problems of Power Engineering,* Iran, Sep. 2011.

[C4] **M. Abdi-Khorsand**, A. Zakariazadeh, and S. Jadid, "Stochastic Wind-Thermal Generation Scheduling Considering Emission Reduction: A Multiobjective Mathematical Programming Approach," *In Proc. of the Asia-Pacific Power and Energy Engineering Conference,* China, Mar. 2011.

[C3] **M. Abdi-Khorsand** and H. Heydari, "Stochastic Reserve Scheduling for Power System with High Penetration of Wind Power and Interruptible Load Participation Analysis," *In Proc. of the 1st Iranian Conf. on Renewable Energy and Distributed Generation,* Iran, Mar. 2010.

[C2] **M. Abdi-Khorsand**, H. Heydari, and A. Zakariazadeh, "Interruptible Load Participation as Operating Reserve in Joint Energy and Spinning Reserve Markets Using Stochastic Security Analysis," *In Proc. of the 2nd International Conf. on Computer and Automation Engineering,* vol. 5, Singapore, Feb. 2010.

[C1] **M. Abdi-Khorsand** and S. Jadid, "Augmented Z_{bus} Transmission Network Cost Allocation," *In Proc. of the 18th Iranian Conference on Electrical Engineering (ICEE),* Iran, May 2010.

Technical reports:

[T9] Line Roald, Daniel Molzahn, and **M. Khorsand Hedman**, "T-64: Who are controlling the DERs? Increasing DER hosting capacity through targeted modeling, sensing, and control," PSERC Final Project Report.

[T8] **M. Khorsand Hedman** and V. Vittal, "Protection System Modeling and Impact Assessment in Transient Stability Analysis Software Tools," Submitted to Salt River Project.

[T7] Final Report, Grid at the Edge: Challenges and Opportunities, *Joint NSF and PSERC Workshop*.

[T6] **M. Khorsand**, K. W. Hedman, L. Tong, A. Papavasiliou, M. Ghaljehei, J. Kwon, M. Saleh, N. G. Singhal, S. Zhang, and C. Chen, "Newly Implemented and Proposed Market Products and Reformulations: Pricing Implications, Analysis, and Enhancements," PSERC Final Project Report.

[T5] C. Singh, V. Vittal, **M. Khorsand Hedman**, Y. Wang, D. Urgun, S. K. Kanchari Bavajigari "Reliability Evaluation of Renewable Generation Integrated Power Grid including Adequacy and Dynamic Security Assessment," PSERC Report, November 2019.

[T4] M. He and **M. Khorsand Hedman**, "Enabling and Incentivizing Active Participation of Customers in Smart Grid," Submitted to Salt River Project.

[T3] R. Vakili, P. Chatterjee, **M. Khorsand Hedman**, and Vijay Vittal, "Analyzing the Importance of Modeling Distance Relays in Stability Studies and Development of an Iterative Contingency-based Algorithm to Identify Critical Lines for Modeling Distance Relays," Submitted to Salt River Project.

[T2] M. Chen, V. Vittal, and **M. Khorsand Hedman**, "An Examination of Transmission System Fexibility Metrics," Submitted to Salt River Project.

[T1] V. Vittal, S. Lotfifard, A. Bose, **M. Khorsand**, I. Kiaei, "Representation, Modeling, Data Development and Maintenance of Appropriate Protective Relaying Functions in Large Scale Transient Stability Simulations," PSERC Final Project Report.

Invited conference papers:

[IC2] R. Vakili and **M. Khorsand**, "A Machine-Learning-Based Method for Identifying Critical Distance Relays for Transient Stability Studies," *Georgia Institute of Technology Protective Relaying Conference, Clayton Griffin Student Paper Award*, 2021. ***(Best Paper Award)***

[IC1] **M. Abdi-Khorsand** and V. Vittal, "Modeling Protection Systems in Time-Domain Simulations: A New Method to Detect Mis-operating Relays for Unstable Power Swings," *Georgia Institute of Technology Protective Relaying Conference, Clayton Griffin Student Paper*

Award, 2017. ***(Best Paper Award)***

Invited presentations:

[IP6] Mojdeh Khorsand Hedman and Mohammad Ghaljehei "Enhanced Flexible Ramping Product: Design and Analysis," FERC Technical Conference: Increasing Real-Time and Day-Ahead Market Efficiency and Enhancing Resilience through Improve Software, June 2020.

[IP5] Mojdeh Khorsand Hedman, "Data-Enabled Modern Resource Management: From Risk Management to Socially-aware Solutions," Power Systems Engineering Research Center (PSERC) Webinar, Nov. 2019.

[IP4] Mojdeh Khorsand Hedman, "Modeling Protection Systems in Time Domain Simulations, North American Electric Reliability Corporation", System Analysis and Modeling Subcommittee, July 2019.

[IP3] Mojdeh Khorsand Hedman, "Corrective Transmission Switching with *N*-1-1 Contingency Analysis", Institute for Operations Research and the Management Sciences (INFORMS) Conference, Oct. 2019.

[IP2] Mojdeh Khorsand Hedman, "Integrated resource plan docket support: ASU LightWorks", Special Open Meeting of the Arizona Corporation Commission, Stakeholder Meeting and Workshop, Resource Planning and Procurement in 2019, 2020 and 2021; In the Matter of Possible Modification to the Rules on Resource Planning and Procurement, Sep. 2019.

[IP1] Mojdeh Khorsand Hedman, "Developing Tools to Support Urban and Regional Energy Planning", One-Day Urban and Regional Energy Transitions Workshop, Apr. 2019.

Teaching Experience

- **Resilient Smart Electric Grids, Arizona State University** (Spring 2020, Spring 2022)
- **Power Systems Operations and Planning, Arizona State University** (Fall 2017, Fall 2018, Fall 2019, Fall 2020, and Fall 2022)
- **Power System Analysis, Arizona State University** (Spring 2018, Spring 2020, and Spring 2023)
- **Electrical Machinery, Azad University, Iran** (Fall 2011, Spring 2012)
- **Circuits Analysis, Azad University, Iran** (Fall 2011, Spring 2012, Spring 2012)
- **Smart Meters and Devices in Smart Grids, Azad University, Iran** (Fall 2011, Spring 2012)

Research Grants

Sponsored projects:

Project Title:	**[Grant 1] CAREER: Holistic Distributed Resource Management and Discovery via Augmented Learning and Robust Optimization**
Agency:	National Science Foundation (NSF)
Grant Amount:	$500,000 (5 Years)
PI:	Mojdeh Khorsand (Arizona State University)
Share:	100%
Co-PIs:	NA
Project Period:	August 2024-August 2029
Project Title:	**[Grant 2] DASH-IBR: Dynamic Assessment of System Health for IBR-dominant Power Systems**

Agency:	Department of Energy (DOE)
Grant Amount:	$3,098,342 (3 Years)
PI:	Raja Ayyanar
Share:	18%
Co-PIs:	Vijay Vittal, Mojdeh Khorsand, Anamitra Pal, Amarsagar Reddy Ramapuram Matavalam (Arizona State University)
Project Period:	Augst 2024- August 2028
Project Title:	**[Grant 3] SRP-JRP Project – Dynamic Modeling and Impact Analysis of Large Data Center Loads in SRP System**
Agency:	Salt River Project (SRP)
Grant Amount:	$70,000
PI:	Raja Ayyanar (Arizona State University)
Share:	33%
Co-PIs:	Vijay Vittal and Mojdeh Khorsand(Arizona State University)
Project Period:	August 2026-August 2027
Project Title:	**[Grant 4] Integration of Protection and Control Systems in Dynamic Security Assessment Methods**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$150,000 (2 Years)
PI:	Sakis Meliopoulos (Georgia Tech)
Share:	50%
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University)
Project Period:	July 2023-July 2025
Project Title:	**[Grant 5] Causal Theory of Residential Electricity Consumption and Production: Unveiling Full Scale Demand Side Flexibility**
Agency:	National Science Foundation (NSF)
Grant Amount:	$197,828 (2 Years)
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	100%
Co-PIs:	NA
Project Period:	September 2022-September 2024
Project Title:	**[Grant 6] Transmission System Analyses for High Penetration Level of Inverter-based Resources: RMS-EMT Co-simulation with Protection System Modeling**
Agency:	Salt River Project (SRP)
Grant Amount:	$70,450
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	34%
Co-PIs:	Vijay Vittal and Raja Ayyanar (Arizona State University)
Project Period:	August 2022-August 2023
Project Title:	**[Grant 7] Root Cause Analysis of Unexpected IBR Tripping and Optimal Settings for Mitigation**
Agency:	Salt River Project (SRP)
Grant Amount:	$70,450
PI:	Raja Ayyanar (Arizona State University)

Share:	33%
Co-PIs:	Vijay Vittal and Mojdeh Khorsand Hedman (Arizona State University)
Project Period:	August 2022-August 2023
Project Title:	**[Grant 8] Comparison of Positive-Sequence Simulation Versus Three-Phase Simulation of IBRs and Rotating Loads in Time Domain Simulation**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$180,000 (2 Years)
PI:	Vijay Vittal (Arizona State University)
Share:	50%
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University)
Project Period:	July 2023-July 2025
Project Title:	**[Grant 9] Bidding Generation Tool for DER Aggregators**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$52,910 (1 Years)
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	100%
Co-PIs:	NA
Project Period:	December 2022- December 2023
Project Title:	**[Grant 10] The Future of Markets and DERs: Providing Essential Grid Services and Managing Performance Risk**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$220,000 (2 Years)
PI:	Kory Hedman (Arizona State University)
Share:	32% ($70,000)
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University), Shmuel Oren (UC Berkeley)
Project Period:	July 2022-August 2024
Project Title:	**[Grant 11] PSERC Transformation Summer School**
Agency:	Sloan (Alfred P.) Foundation
Grant Amount:	$250,000 (1 Year)
PI:	Kory Hedman (Arizona State University)
Share:	30%
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University), Mike Ranjram (Arizona State University), and Chee-Woi Ten (Michigan Tech University)
Project Period:	December 2021- December 2022
Project Title:	**[Grant 12] Protection System Modeling and Impact Assessment in Transient Stability Analysis Soft-ware Tools**
Agency:	Salt River Project (SRP)
Grant Amount:	$65,450
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	50%
Co-PIs:	Vijay Vittal(Arizona State University)
Project Period:	August 2021-August 2022
Project Title:	**[Grant 13] Sensor Enabled Modeling of Future Distribution Systems with Distributed Energy Resources**
Agency:	The US Department of Energy, Advanced Research Projects Agency-Energy
Grant Amount:	$3,100,000 (3 Years)

PI:	Vijay Vittal (Arizona State University)
Share:	18% ($558,000)
Co-PIs:	Mojdeh Khorsand Hedman, Raja Ayyanar, Anamitra Pal, Yang Weng (Arizona State University)
Project Period:	September 2019-September 2022
Project Title:	**[Grant 14] Who are controlling the DERs? Increasing DER hosting capacity through targeted modeling, sensing, and control**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$220,000 (2 Years)
PI:	Line Roald (University of Wisconsin–Madison)
Share:	32% ($70,000)
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University), Daniel Molzahn (Georgia Institute of Technology)
Project Period:	July 2020-August 2022
Project Title:	**[Grant 15] Newly Implemented and Proposed Market Products and Reformulations: Pricing Implications, Analysis, and Enhancements**
Agency:	Power Systems Engineering Research Center (PSERC)
Grant Amount:	$220,000 (2 Years)
PI:	Mojdeh Khorsand (Arizona State University)
Share:	36% ($80,000)
Co-PIs:	Kory Hedman (Arizona State University) and Lang Tong (Cornell University)
Project Period:	July 2018 - August 2020
Project Title:	**[Grant 16] Enabling and Incentivizing Active Participation of Customers in a Smart Grid**
Agency:	Salt River Project (SRP)
Grant Amount:	$57,200
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	100% ($57,200)
Co-PIs:	N/A
Project Period:	August 2018-August 2019
Project Title:	**[Grant 17] Development of a Co-simulation Platform for ASPEN and PSLF to Represent Protective Relaying Functions in Transient Stability Simulations**
Agency:	Salt River Project (SRP)
Grant Amount:	$62,700
PI:	Mojdeh Khorsand Hedman (Arizona State University)
Share:	50% ($31,350)
Co-PIs:	Vijay Vittal (Arizona State University)
Project Period:	August 2018-August 2019
Project Title:	**[Grant 18] An Examination of Transmission System Flexibility Metrics**
Agency:	Salt River Project (SRP)
Grant Amount:	$62,700 ($31,350)
PI:	Vijay Vittal (Arizona State University)
Share:	50% ($31,350)
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University)
Project Period:	August 2018-August 2019

Project Title:	**[Grant 19] Arizona Corporation Commission: Energy Modeling Tool Development**
Agency:	Arizona Corporation Commission, TRIF
Grant Amount:	$95,000
PI:	Gary Dirks (Arizona State University)
Share:	100% ($95,000)
Co-PIs:	Mojdeh Khorsand Hedman (Arizona State University)
Project Period:	March 2019-June 2020

Professional Activities and Services

Referee:

- Reviewer for IEEE Transactions on Power Systems
- Reviewer for IEEE Transactions on Sustainable Energy
- Reviewer for IET Generation, Transmission & Distribution
- Reviewer for IEEE Transactions on Smart Grid
- Reviewer for IEEE Systems Journal
- Reviewer for Journal of Renewable and Sustainable Energy

Member:

- IEEE
- IEEE Power and Energy Society (PES)
- IEEE PES Women in Power
- IEEE PES Task Force on Integrating Relay Models in Electromechanical Simulations
- IEEE PES ASU Student Branch Chapter, Faculty Advisor

Conference and Meeting Organization:

- The 54th North American Power Symposium Session Chair
- Chair of organizing committee for the 52nd North American Power Symposium
- Member of Technical Organizing Committee of Lunar Surface Innovation Consortium (LSIC) Fall Meeting 2020: LSIC operates in collaboration with the NASA Space Technology Mission Directorate under the Lunar Surface Innovation Initiative
- IEEE PES General Meeting Panel Session Chair: DER-enabled and Sensor-enabled Active Distribution System Management, 2021
- IEEE PES General Meeting Panel Session Chair: Flexibility Requirements and Procurements: Resource Evolution and Emerging Market Products, 2021
- IEEE PES General Meeting Panellist: Integrating Relay Models with RMS Dynamic Simulations, 2021
- Session chair: Machine Learning Applications, Emerging Topics Track, NAPS 2019
- Organizing IEEE PES Phoenix Chapter and ASU joint luncheon: 2018 and 2019

ASU Committee:

- New Faculty Advisory Council, committee member, Arizona State University: 2017-2019
- Financial and infrastructure committee, School of Electrical, Computer, and Energy Engineering, Arizona State University

Other Services:

- Volunteer at Arizona Science Lab (a non-profit affinity group of the IEEE Phoenix Section; ASL educates 4-9th grade students on STEM and targets Title 1 schools)

Awards and Honors

- Clayton Griffin Paper Award, Georgia Institute of Technology Protective Relaying Conference, May 2017 and 2021.
- IEEE PES Phoenix Chapter Graduate Power Engineering Scholarship, March 2016.
- IEEE Phoenix Section Student Scholarship, January 2016.
- University Graduate Fellowship, Arizona State University, 2012.

Advising Students

Graduated Students:

- Ramin Vakili, Ph.D., Summer 2022
- Mohammad Ghaljehei, Ph.D., Spring 2022
- Yingying Wang, Ph.D., Spring 2020
- Zahra Soltani, Ph.D., Spring 2023
- Mingyue He, Ph.D., Spring 2024
- Giritharan Vijay Iswaran, MS, Summer 2022
- Byeongdoo Jeon, MS, Spring 2020
- Mingyue He, MS, Fall 2019
- Mengxi Chen, MS, Fall 2019

Current Ph.D. Students:

- Almuthana Alharbi, expected Fall 2026
- Giritharan Vijay Iswaran, expected Fall 2026
- Reza Cheshomi, expected Spring 2027
- Sara Ostovar, expected Summer 2027
- Nirupama Pudukkarai Srinivas, expected Fall 2027
- Hari Krishna Achuthan Parthasarathy, expected Summer 2027
- Amir Esmaeili-Nezhad, expected Summer 2028

Past Post-doc Mentoring:

- Dr. Masoud Esmaili