Building ISTB-3, Suite 121
7418 Innovation Way South
Mesa, AZ 85212

nathanjohnson@asu.edu
480-727-5271

Nathan G. Johnson Curriculum Vitae

Table of Contents

Professional Appointments

Director and Professor 2025 – present
The Polytechnic School, Ira A. Fulton Schools of Engineering, Arizona State University

Associate Professor 2019 – 2025
The Polytechnic School, Ira A. Fulton Schools of Engineering, Arizona State University

Center Director 2022 – 2025
ASU-Starbucks Center for the Future of People and the Planet, Arizona State University

Assistant Director of Research 2022 – 2024
Global Futures Laboratory, Arizona State University

Assistant Professor 2013 – 2019
The Polytechnic School, Ira A. Fulton Schools of Engineering, Arizona State University

NSF/ASEE Small Business Postdoctoral Research Diversity Fellow 2011 – 2013
HOMER Energy LLC

Engineer and Business Development Manager 2007 – 2008
Emerging Consumer Markets, BP

Education

Ph.D.	Mechanical Engineering	Iowa State University	2012
M.S.	International Development	Iowa State University	2008
M.S.	Mechanical Engineering	Iowa State University	2005
B.S.	Mechanical Engineering	Iowa State University	2004

Summary of Professional Accomplishments

Research

- Published 74 peer-reviewed articles for journals, books, conferences, and technical reports
- Gave 101 invited keynotes, distinguished lectures, panels, invited talks, and conference presentations
- Awarded sponsored research of $53,635,666 (total) and $26,872,530 (PI recognized value), and another $2,138,452 in external technical services
- Implementation funding of approximately $332M for 161 MW benefiting over 100,000 people
- Director of the Laboratory for Energy And Power Solutions (LEAPS) with 40 people at ASU, plus collaborations with 84 external partners and funding from 28 sponsoring entities
- Secured funding for, designed, and deployed a $2.5M Microgrid Proving Grounds facility
- Awarded 1 patent, 2 patents pending, with several other works under copyright
- Created 1 startup business originating from ASU intellectual property

Teaching and Mentorship

- Developed 7 new undergraduate courses, 7 new graduate courses, and 2 study abroad
- Received 2 teaching awards from ASU
- Graduated 9 PhD students, mentor 5 current PhD students, and serve on 11 PhD committees
- Mentored 130 MS students, BS students, and visiting scholars
- Students recognized with 37 fellowships and awards
- Currently leading 14 research staff and 2 postdocs; and previously 11 research staff, 2 postdocs, and 1 Assistant Research Professor
- Delivered 25 workshops and tutorials on new energy technologies, business models, and policy
- Trained over 3000 people in grid modernization, microgrids, distributed energy resources, electric grid operation, grid security, and cybersecurity
- Trained over 800 US Veterans in microgrids and cybersecurity to support job attainment when transitioning out of military service

Service

- Director of the ASU-Starbucks Center for the Future of People and the Planet that includes 5 core research staff and extends to include 50+ more faculty, students, and staff working on projects
- Served 3 times as Conference Chair or Program Chair for international conferences
- Served 1 time as Faculty Search Committee Chair
- Served for 1 journal as editor, 12 journals as reviewer, and 7 agencies as proposal reviewer
- Established 10 external partnerships with universities, businesses, federal entities, and NGOs
- Board Member or External Technical Advisor to 5 small businesses and 3 electric utilities

Publications and Intellectual Property

Summary of Publications and Intellectual Property

Category	Count
Invited Book Chapters	1
Journal Publications	37
Refereed Conference Papers	29
Non-Refereed Conference Papers	5
Technical Reports	7
Periodicals	3
Standards	1
Patents	1
Patents Pending	2
Other Intellectual Property	3
Innovation Awards	6
Business Startups from ASU Intellectual Property	1

Invited Book Chapters: 1

[1] Diekman, S., Pope, D., Falk, H., Ballesteros, M., Dherani, M., Bruce, N., Meddings, D., Johnson, N.G., Bryden, M. (2014). "Burns, scalds and poisoning" in "WHO Indoor Air Quality Guidelines: Household Fuel Combustion," World Health Organization.

Journal Publications: 37

[1] Kellogg, R., Mobley, A., Janko, S., Johnson, S., & Johnson, N. (2026). Workforce development to meet global demand for microgrids. *International Journal of Training Research*, 1-30. DOI: http://doi.org/10.1080/14480220.2025.2608019

[2] Sparks, R., Tobias, S., Kemabonta, T., Nelson, J., & Johnson, N. (2025). Microgrid system sizing and aggregation of distributed energy resources for wholesale market participation. *Applied Energy*, *400*, 126537. DOI: doi.org/10.1016/j.apenergy.2025.126537

[3] Kemabonta, T., & Johnson, N. G. (2025). Institutional frameworks to facilitate power sector transformation in West Africa. *Energy Strategy Reviews*, *57*, 101619. DOI: doi.org/10.1016/j.esr.2024.101619

[4] Garcesa, A., & Johnson, N. (2025). Co-optimizing microgrid asset sizing and dispatch with building automation and load control. *Frontiers in Energy Research*, *13*, 1712690. DOI: doi.org/10.3389/fenrg.2025.1712690

[5] Garcesa, A., Johnson, N.G., Nelson, J. (2025). Evaluating the Stacked Economic Value of Load Shifting and Microgrid Control. *Buildings*, 15, 2378. DOI: doi.org/10.3390/ buildings15132378

[6] Kersey, J., Massa, C. K., Mbabazi, J., Asiimwe, P. K., Letaru, L., Jurua, M., Sirezi, B., Lukuyu, J., van Hove, E., Mwesiga, P., Taneja, J., Johnson, N.G., Mukwaya, P.I., Kammen, D.M. & Kwong, L. H. (2025). “Then electricity theft would end, nobody loves stealing”: Community-based

solutions for improving electricity access in informal settlements in Kampala, Uganda. *Energy Research & Social Science*, *126*, 104143. DOI: doi.org/10.1016/j.erss.2025.104143

[7] Velásquez, A. A., Alsanad, A., Lammers, K., Linke, A., Johnson, N., van Hove, E., & Cader, C. (2025). Improving vaccination access through off-grid electrification: An assessment in Ghana. *Energy for Sustainable Development*, *88*, 101794. DOI: doi.org/10.1016/j.esd.2025.101794

[8] Hoff, R., Sparks, R., Chester, M., Mustafa, A., Johnson, N., Birchfield, A., McPhearson, T., Li, R., Ahmad, N., & Searles, I. (2025). Cascading Failure Propagation and Perfect Storms in Interdependent Infrastructures. *ASCE OPEN: Multidisciplinary Journal of Civil Engineering*, *3*(1), 04025001. DOI: doi.org/10.1061/AOMJAH.AOENG-0045

[9] Wodicker, M., Nelson, J., Johnson, N. G. (2024) Unified dispatch of grid-connected and islanded microgrids. *Frontiers in Energy Research* 11, 1257050. DOI: 10.3389/fenrg.2023.1257050

[10] A. Kazemtarghi, S. Dey, S., Mallik, A., Johnson, N. G. (2023) Asymmetric Half-Frequency Modulation in DAB to Optimize the Conduction and Switching Losses in EV Charging Applications. *IEEE Transactions on Transportation Electrification.* DOI: 10.1109/TTE.2023.3234198

[11] Saha, S. S., Scaglione, A., Ramakrishna, R., & Johnson, N. G. (2022). Distribution Systems AC State Estimation via Sparse AMI Data Using Graph Signal Processing. *IEEE Transactions on Smart Grid*. DOI: 10.1109/TSG.2022.3176298

[12] Arnold, D., Saha, S., Ngo, S., Roberts, C., Scaglione, A., Johnson, N. G., Peisert, S., Pinney, D. (2022). Adaptive Control of Distributed Energy Resources for Distribution Grid Voltage Stability. *IEEE Transactions on Power Systems.* DOI: 10.1109/TPWRS.2022.3157558

[13] Bondank, E. N., Chester, M. V., Michne, A., Ahmad, N., Ruddell, B. L., & Johnson, N. G. (2022). Anticipating water distribution service outages from increasing temperatures. *Environmental Research: Infrastructure and Sustainability*. DOI: 10.1088/2634-4505/ac8ba3

[14] van Hove, E., Johnson, N. G., Blechinger, P. Evaluating the Impact of Productive Uses of Electricity on Mini-grid Bankability. (2022) *Energy for Sustainable Development.* DOI: 10.1016/j.esd.2022.10.001

[15] van Hove, E., Johnson, N. G. (2021). Refugee settlements in transition: Energy access and development challenges in Northern Uganda. *Energy Research & Social Science*, 78, 102103. DOI: 10.1016/j.erss.2021.102103

[16] Gorman, B. T., Lanzarini-Lopes, M., Johnson, N. G., Miller, J. E., Stechel, E. B. (2021). Techno-Economic Analysis of a Concentrating Solar Power Plant Using Redox-Active Metal Oxides as Heat Transfer Fluid and Storage Media. *Frontiers in Energy Research*, 9, 734288. DOI: 10.3389/fenrg.2021.734288

[17] Saha, S., Ravi, N., Hreinsson, K., Baek, J., Scaglione, A., & Johnson, N. G. (2020). A secure distributed ledger for transactive energy: The Electron Volt Exchange (EVE) blockchain. *Applied Energy*, 282, 116208. DOI: 10.1016/j.apenergy.2020.116208

[18] Nelson, J., Johnson, N. G., Fahy, K., & Hansen, T. A. (2020). Statistical development of microgrid resilience during islanding operations. *Applied Energy*, 279, 115724. DOI: 10.1016/j.apenergy.2020.115724

[19] Janko, S., & Johnson, N. G. (2020). Reputation-based competitive pricing negotiation and power trading for grid-connected microgrid networks. *Applied Energy*, 277, 115598. DOI: 10.1016/j.apenergy.2020.115598

[20] Budama, V. K., Johnson, N. G., Ermanoski, I., & Stechel, E. B. (2020). Techno-economic analysis of thermochemical water-splitting system for co-production of hydrogen and electricity. *International Journal of Hydrogen Energy*, 46(2), 1656-1670. DOI: 10.1016/j.ijhydene.2020.10.060

[21] Saha, S. S., Arnold, D., Scaglione, A., Schweitzer, E., Roberts, C., Peisert, S., & Johnson, N. G. (2020). Lyapunov Stability of Smart Inverters Using Linearized DistFlow Approximation. *IET Renewable Power Generation*. In press.

[22] Nelson, J., Johnson, N. G., (2020). Model predictive control of microgrids for real-time ancillary service market participation. *Applied Energy*, *269*, 114963. DOI: 10.1016/j.apenergy.2020.114963

[23] Ahmad, N., Chester, M., Bondank, E., Arabi, M., Johnson, N., & Ruddell, B. L. (2020). A synthetic water distribution network model for urban resilience. *Sustainable and Resilient Infrastructure*, 1-15. DOI: 10.1080/23789689.2020.1788230

[24] Nelson, J., Johnson, N. G., Chinimilli, P. T., Zhang, W. (2019). Residential cooling using separated and coupled precooling and thermal energy storage strategies. *Applied Energy*, *252*, 113414. DOI: 10.1016/j.apenergy.2019.113414

[25] Schweitzer, E., Saha, S. S., Scaglione, A., Johnson, N. G., Arnold, D. (2019). Lossy DistFlow formulation for single and multiphase radial feeders. *IEEE Transactions on Power Systems*. DOI: 10.1109/TPWRS.2019.2954453

[26] Janko, S., Johnson, N. G. (2018). Scalable multi-agent microgrid negotiations for a transactive energy market. *Applied Energy, Special Issue on Distributed Energy and Microgrids (DEM)*, *229,* 715-727. DOI: 10.1016/j.apenergy.2018.08.026

[27] Budama, V., Johnson, N. G., McDaniel, A., Ermanoski, I., Stechel, E. (2018). Thermodynamic development and design of a concentrating solar thermochemical water-splitting process for co-production of hydrogen and electricity. *International Journal of Hydrogen Energy*, *43,* 17574-17587. DOI: 10.1016/j.ijhydene.2018.07.151

[28] Nelson, J., Johnson, N. G., Doron, P., Stechel, E. B. (2018). Thermodynamic modeling of solarized microturbine for combined heat and power applications. *Applied Energy*, *212*, 592-606. DOI: 10.1016/j.apenergy.2017.12.015

[29] McComb, C., Johnson, N. G., Santaeufemia, P. S., Gorman, B. T., Kolste, B., Mobley, A., Shimada, K. (2018). Multi-objective optimization and scenario-based robustness analysis of the MoneyMaker Hip Pump. *Development Engineering*, *3*, 23-33. DOI: 10.1016/j.deveng.2018.01.001

[30] Burillo, D., Chester, M. V., Ruddell, B., Johnson, N. (2017). Electricity demand planning forecasts should consider climate non-stationarity to maintain reserve margins during heat waves. *Applied Energy*, *206*, 267-277. DOI: 10.1016/j.apenergy.2017.08.141

[31] Janko, S. A., Arnold, M. R., Johnson, N. G. (2016). Implications of high-penetration renewables for ratepayers and utilities in the residential solar photovoltaic (PV) market. *Applied Energy*, *180*, 37-51. DOI: 10.1016/j.apenergy.2016.07.041

[32] Bartos, M., Chester, M., Johnson, N., Gorman, B., Eisenberg, D., Linkov, I., Bates, M. (2016). Impacts of rising air temperatures on electric transmission ampacity and peak electricity load in the United States. *Environmental Research Letters*, *11*(11), 114008. DOI: 10.1088/1748-9326/11/11/114008

[33] Vignarooban, K., Chu, X., Chimatapu, K., Ganeshram, P., Pollat, S., Johnson, N. G., Razdan, A. R., Pelley, D. S., Kannan, A. M. (2016). State of health determination of sealed lead acid batteries under various operating conditions. *Sustainable Energy Technologies and Assessments*, *18*, 134-139. DOI: 10.1016/j.seta.2016.10.007

[34] Johnson, N. G., Bryden, K. M. (2015). Field-based safety guidelines for solid fuel household cookstoves in developing countries. *Energy for Sustainable Development*, *25*, 56-66. DOI: 10.1016/j.esd.2015.01.002

[35] Miller, C. A., Altamirano-Allende, C., Johnson, N. G., Agyemang, M. (2015). The social value of mid-scale energy in Africa: Redefining value and redesigning energy to reduce poverty. *Energy Research & Social Science*, *5*, 67-69. DOI: 10.1016/j.erss.2014.12.013

[36] Johnson, N. G., Bryden, K. M. (2012). Factors affecting fuelwood consumption in household cookstoves in an isolated rural West African village. *Energy*, *46*(1), 310-321. DOI: 10.1016/j.energy.2012.08.019

[37] Johnson, N. G., Bryden, K. M. (2012). Energy supply and use in a rural West African village. *Energy*, *43*(1), 283-292. DOI: 10.1016/j.energy.2012.04.028

Refereed Conference Papers: 29

[1] A. Kazemtarghi, N. Ishraq, P. Rathod, A. Mallik and N. Johnson, (2023) "DC Link Voltage Optimization for Efficiency Enhancement of Electric Vehicle Onboard Chargers," In *IEEE 2nd Industrial Electronics Society Annual On-Line Conference (ONCON)*, SC, USA, 2023, pp. 1-6, doi: 10.1109/ONCON60463.2023.10431027

[2] Kemabonta, T., van Hove, E., Johnson, N. G., Alsanad, A. (2022). Accelerating Mini-grid Feasibility Assessments with Rapid Engineering and Business Model Evaluation. In *IEEE 2022 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1080/23789689.2020.1788230

[3] Saha, S., Gorog, C., Moser, A., Scaglione, A., & Johnson, N. G. (2020). Integrating Hardware Security into a Blockchain-Based Transactive Energy Platform. In *North American Power Symposium 2020*. DOI: 10.1109/NAPS50074.2021.9449802

[4] Roberts, C., Ngo, S. T., Milesi, A., Peisert, S., Arnold, D., Saha, S., Scaglione, A., Johnson, N. G., Kocheturov, A., & Fradkin, D. (2020). Deep Reinforcement Learning for DER Cyber-Attack Mitigation. *In 2020 IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm)*. IEEE. DOI: 10.1109/SmartGridComm47815.2020.9302997

[5] van Hove, E., Van Cleve, C., Mobley, A., Janko, S., Plum, A., Zamudio, A., Schmaltz, J., Nollete, J., Hampton, J., Johnson, N. G. (2020). Rapidly Deployable Containerized Medical Clinic for Refugee Settings. In *IEEE 2020 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC46280.2020.9342950

[6] Saha, S., Schweitzer, E., Scaglione, A., & Johnson, N. G. (2019). A framework for generating synthetic distribution feeders using OpenStreetMap. In *North American Power Symposium 2019*. DOI: 10.1109/NAPS46351.2019.9000187

[7] Saha, S., & Johnson, N. G. (2018). Point-on-wave analysis of three-phase induction motor under fault external to the power plant. In *IEEE 2018 Power & Energy Society (PES) General Meeting*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/PESGM.2018.8586031

[8] Janko, S., & Johnson, N. G. (2017). Design of an agent-based technique for controlling interconnected distributed energy resource transactions. In *ASME 2017 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2017-68346

[9] Saha, S., Janko, S., Johnson, N. G., Podmore, R., Riaud, A., & Larsen, R. (2016). A universal charge controller for integrating distributed energy resources. In *IEEE 2016 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2016.7857320

[10] Lopes, M. L., Johnson, N. G., Miller, J. E., & Stechel, E. B. (2016). Concentrating solar power systems with advanced thermal energy storage for emerging markets. In *IEEE 2016 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2016.7857318

[11] Janko, S., Atkinson, S., & Johnson, N. (2016). Design and fabrication of a containerized micro-grid for disaster relief and off-grid applications. In *ASME 2016 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2016-60296

[12] Miller, J. E., Ambrosini, A., Babiniec, S. M., Coker, E. N., Ho, C. K., Al-Ansary, H., Jeter, S. M., Loutzenhiser, P. G., Johnson, N. G., & Stechel, E. B. (2016). High performance reduction/oxidation metal oxides for thermochemical energy storage (PROMOTES). In *ASME 2016 10th International Conference on Energy Sustainability collocated with the ASME 2016 Power Conference and the ASME 2016 14th International Conference on Fuel Cell Science, Engineering and Technology*. American Society of Mechanical Engineers. DOI: 10.1115/ES2016/59660

[13] Janko, S. A., Gorman, B. T., Singh, U. P., & Johnson, N. G. (2015). High penetration residential solar photovoltaics and the effects of dust storms on system net load. In *ASME 2015 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2015-48030

[14] Agyemang, M., & Johnson, N. G. (2015). Development of biomass energy technologies and business models for Southern Africa. In *ASME 2015 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2015-48033

[15] Gorman, B. T., Johnson, N. G., Miller, J. E., & Stechel, E. B. (2015). Thermodynamic investigation of concentrating solar power with thermochemical storage. In *ASME 2015 9th International Conference on Energy Sustainability collocated with the ASME 2015 Power Conference, the ASME 2015 13th International Conference on Fuel Cell Science, Engineering and Technology, and the ASME 2015 Nuclear Forum*. American Society of Mechanical Engineers. DOI: 10.1115/ES2015-49810

[16] Reilly, K. M., Birner, M. T., & Johnson, N. G. (2015). Measuring air quality using wireless self-powered devices. In *IEEE 2015 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2015.7343983

[17] McComb, C., Santaeufemia, P. S., Johnson, N. G., & Shimada, K. (2014). Identifying technical and economic improvements to the MoneyMaker Hip pump through multi-objective optimization. In *IEEE 2014 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2014.6970302

[18] Santaeufemia, P. S., Johnson, N. G., McComb, C., & Shimada, K. (2014). Improving irrigation in remote areas: Multi-objective optimization of a treadle pump. In *ASME 2014 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.* American Society of Mechanical Engineers. DOI: 10.1115/DETC2014-35463

[19] Johnson, N. G., & Granato, M. (2014). Single cell battery charger for portable electronic devices in developing countries. In *ASME 2014 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.* American Society of Mechanical Engineers. DOI: 10.1115/DETC2014-35457

[20] Carberry, A., Johnson, N., & Henderson, M. (2014). A practice-then-apply scaffolding approach to engineering design education. In *2014 Frontiers in Education Conference (FIE)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/FIE.2014.7044291

[21] Johnson, N. G., Glassmire, J. W., & Lilienthal, P. D. (2013). Techno-economic design of off-grid domestic lighting solutions using HOMER. In *ASME 2013 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2013-13630

[22] Johnson, N. G., & Bryden, K. M. (2013). Establishing consumer need and preference for design of village cooking stoves. In *ASME 2013 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2013-13629

[23] Johnson, N. G., Glassmire, J. W., & Lilienthal, P. D. (2012). Comparing power system architectures for domestic lighting in isolated rural villages with HOMER. In *IEEE 2012 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2012.55

[24] Johnson, N. G., & Bryden, K. M. (2012). The impact of cookstove adoption and replacement on fuelwood savings. In *IEEE 2012 Global Humanitarian Technology Conference (GHTC)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2012.56

[25] Johnson, N. G., Lilienthal, P., & Schoechle, T. (2011). Modeling distributed premises-based renewables integration using HOMER. *Grid-Interop*.

[26] Bryden, K. M., & Johnson, N. G. (2011). Understanding rural village energy needs and design constraints. In *ASME 2011 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2011-48669

[27] Johnson, N. G., Hallam, A., Conway, S., & Bryden, M. (2006). Sustainable and market-based analyses of cooking technologies in developing countries. In *ASME 2006 International Mechanical Engineering Congress and Exposition* (IMECE). American Society of Mechanical Engineers. DOI: 10.1115/IMECE2006-15375

[28] Johnson, N. G., Karthikeyan, B., Ashlock, D. A., & Bryden, K. M. (2006). AMoEBA image segmentation: modeling of individual Voronoi tessellations. In *IEEE 2006 Congress Evolutionary Computation (CEC)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/CEC.2006.1688569

[29] Johnson, N. G., Bryden, M., & Xiao, A. (2005). Risk analysis and safety evaluation of biomass cookstoves. In *ASME 2005 International Mechanical Engineering Congress and Exposition* (IMECE). American Society of Mechanical Engineers. DOI: 10.1115/IMECE2005-82112

Non-Referred Conference Papers: 5

[1] Kemabonta, T., Johnson, N.G. (2024). Institutional Frameworks to Facilitate Power Sector Transformation in West Africa. In *International Energy Justice Early Career Conference*. Tilburg University, the Netherlands.

[2] Kemabonta, T., Johnson, N.G. (2023). Watts Happening? Understanding Electric Power Sector Reforms in West Africa. In *Doctoral Student Participatory Workshop on Climate and Energy Decision Making*. Carnegie Mellon University, USA.

[3] Kemabonta, T., Johnson, N.G. (2023). Energy Access and the Implications of State and Private Ownership of Electric Utilities in Sub-Saharan Africa. In *Interdisciplinary PhD Workshop in Sustainable Development*. Columbia University, USA.

[4] Kemabonta, T., Johnson, N.G. (2022). Calculation, Knowledge and Entrepreneurial Action in the Production of Electricity: Case Studies of Nigeria and the United States. In *Austrian Economics Research Conference (AERC)*. Auburn, Alabama.

[5] Lucero, B., Johnson, N. G., Stechel, E. B., Ermanoski, I., McDaniel, A. (2015) Thermodynamic analysis of concentrating solar tower with cascading receivers and metal oxide heat transfer fluid to produce pure hydrogen. In *ASME 2015 Power and Energy Conversion Conference*. San Diego, California.

Technical Reports: 7

[1] Aligning Community and Funding Priorities with Standardized Modelling and Automation: Key Success Factors for Deploying Remote Microgrids. (2025). Xendee Corporation.

[2] Just Transition for Coal Communities: An Actionable Community-Based Framework. (2024). US Agency for International Development (USAID).

[3] Madagascar Integrated Energy Plan – Clean Cooking. (2023). United Nations (UN) Sustainable Energy Access for All (SEforAll).

[4] Malawi Integrated Energy Plan – Clean Cooking. (2022). United Nations (UN) Sustainable Energy Access for All (SEforAll).

[5] Energy Sector Innovation Hubs: A Conceptual Model for the Creation and Sustainment of Innovation in the Energy Sector. (2023). US Agency for International Development (USAID).

[6] A Practical Framework to Enhance Asset Circularity for Electric Utilities. (2023). US Agency for International Development (USAID).

[7] Design, Modeling, and Control of Hybrid ESS for DoD Microgrids. (2023). U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP).

Periodicals: 3

[1] Anderson, A., Loomba, P., Orajaka, I., Numfor, J., Saha, S., Janko, S., Johnson, N. G., Podmore, R., & Larsen, R. (2017). Empowering smart communities: Electrification, education, and sustainable entrepreneurship in IEEE Smart Village Initiatives. *IEEE Electrification Magazine*, *5*(2), 6-16. DOI: 10.1109/MELE.2017.2685738

[2] Podmore, R., Larsen, R., Louie, H., Johnson, N. G., & Saha, S. (2016). Fueling sustainability: The exponential impact of empowering off-grid communities. *IEEE Electrification Magazine*, *4*(1), 11-17. DOI: 10.1109/MELE.2015.2509878

[3] Johnson, N. G., & Bryden, K. M. (2013). Clearing the air over cookstoves. *DEMAND.* 1(1):8-13.

Standards: 1

[1] International Standards Organization / Technical Committee 285: Clean cookstoves and clean cooking solutions.

Patents: 1

[1] Hamel, D., Johnson, N. G., Morris, G., Chester, M., Scaglione, A., Bondank, E. (2023) Systems and methods for Resilient Infrastructure Simulation Environment. US Patent: US-11722379-B2

Patents Pending: 2

[1] Chester, M., Ahmad, SKN, Johnson, N., Hoff, R. Systems and methods for a synthetic infrastructure model for vulnerability, failure, and future transition planning. US Patent Application: 18205416

[2] Scaglione, A., Johnson, N. G. Efficient sensor placement and resilient online high resolution state estimation in distribution feeders and micro-grids using Grid Graph Signal Processing (GGSP) algorithms.

Other Intellectual Property: 3

[1] Johnson, N. G., Mobley, A., Janko, S., & Nelson, J. (2020). Microgrid training for engineers, operators, installers, and technicians. Copyright.

[2] Webster, N. & Johnson, N. G. (2018). Systems and methods for a distributed energy resource aggregator. Copyright.

[3] Nelson, J. & Johnson, N. G. (2018). Systems and methods for optimized control of local energy assets for participation in real-time energy markets. Copyright.

Innovation Awards: 6

[1] Edison Award for Critical Human Infrastructure (2021). XENDEE Microgrid Cloud Computing Platform. Senior Advisor.

[2] National Security Academic Accelerator (2021). Adaptive Controls for Energy Systems. Nelson, J. & Johnson, N. G.

[3] Project of the Year (2020). Office of the Secretary of Defense, Environmental Security Technology Certification Program, Installation Energy and Water.

[4] Faculty Innovation in Scholarship Award (2018). The Polytechnic School. Johnson, N. G.

[5] ASU Innovation Award (2018). Holistic Water Solutions. Simmons-Benton, A., Irish-Cochran, H., Groeneveld, J., Schulze, L., Johnson, N. G., Larson, R.

[6] TechConnect Defense Innovation Award (2017). Microgrid Software to Validate Resilience, Energy Security, and Bankability. Nasle, A., & Johnson, N. G.

Business Start-ups from ASU Intellectual Property: 1

[1] Adaptive Controls for Energy Systems (ACES). Nelson, J., & Johnson, N. G.

Presentations

Summary of Presentations

Category	Count
Keynotes	5
Distinguished Lectures	2
Panel Speaker	15
Panel Moderator	14
Workshops and Tutorials	25
Invited Talks	50
Refereed Conference Presentations	29
Non-Refereed Conference Presentations	15

Keynotes: 5

[1] Accelerating Off-grid Electrification in Pacific Island Countries. July 2, 2024. Suva, Fiji.

[2] Accelerating Energy Sector Transformation through Global Partnerships and US Innovation. 2024. U.S. Trade and Development Agency (USTDA) and Arizona State University (ASU). Tempe, Arizona.

[3] Cyber-physical modeling applications to enable a low-carbon energy transition. In *6th Low Emission Advanced Power (LEAP) Workshop*. 2021. U.S. Department of Energy.

[4] Confronting energy challenges in our global future. In *2015 EWB-USA Mountain Regional Conference*. Tempe, Arizona.

[5] Confronting global energy challenges. Early Career Engineers Event in *ASME 2014 International Mechanical Engineering Congress and Exposition*. Montreal, Canada.

Distinguished Lectures: 2

[1] Accelerating the Global Energy Transition. Southern Methodist University, Lyle School of Engineering Dean's Distinguished Seminar. September 20, 2024.

[2] From energy access to grid resiliency: A story of anthropology, engineering, and business. Oregon State University, College of Engineering, School of Mechanical, Industrial, and Manufacturing Engineering. February 8, 2019.

Panel Speaker: 15

[1] Systems Integration and Market Positioning for LDES. 2024 NSF SWISE Long Duration Energy System Symposium. Tempe, Arizona.

[2] STEM Faculty Supporting Students' Mental Health. 2024 National Convening on the State of Mental Health in STEM. Virtual.

[3] Reinventing the Future of Sustainable Retail. ASU Global Futures Laboratory Earth Week. 2022. Tempe, Arizona.

[4] Nexus of National Security & Energy Security. TechConnect World 2021. Washington, DC.

[5] Value propositions of DER. 2021 Arizona Energy Future Conference. Tempe, Arizona.

[6] Emerging technologies and commercialization. 2021 Arizona Energy Future Conference, Tempe, Arizona.

[7] Military Microgrids: Veteran Workforce Opportunities. 2021 Veterans Advanced Energy Week.

[8] Building a workforce for cyber-physical systems security. 2019 Cyber-Physical Systems Security Workshop. University of Rhode Island.

[9] Panel for sustainable business opportunities in low-income countries. 2019 ASME Turbomachinery Technical Conference & Exposition (Turbo Expo). Phoenix, Arizona.

[10] Microgrids 101: Development, operations and sustainability. In *2018 VERGE Hawaii*. Honolulu, Hawaii.

[11] Energy innovations for the unconnected. In *2016 Global Connect Event*. World Bank and IEEE. Washington, D.C.

[12] Making solutions to global energy challenges. In *2015 Inaugural National Maker Faire*. Washington, DC.

[13] Confronting energy challenges in our global future. In *IEEE 2015 Rising Stars Conference*. Las Vegas, Nevada.

[14] The rise of global development in academia*, ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE)*. Montreal, Canada.

[15] Designing for sustainability. In *IEEE 2012 Global Humanitarian Technology Conference* (GHTC). Seattle, Washington.

Panel Moderator: 14

[1] How to Bring Maximum Microgrid Value to Utilities and Their Customers. 2022. Microgrid Knowledge.

[2] A Practical Guide to Asset Recovery and Circular Economy for Electric Utilities. 2022. US Agency for International Development and United States Energy Agency.

[3] Clean Energy Research and Education. 2022. UNESCO Innovative, Sustainable and Clean Energy Research and Education.

[4] Advanced Energy Technology Forum. 2022. United States Energy Agency.

[5] Advanced Energy Technology Forum. 2021. United States Energy Agency.

[6] Power to the people with minigrids: innovative technologies and investment strategies that are bringing solar energy to rural communities. 2019. Security and Sustainability Forum.

[7] Engineering for Global Development Keynote and Forum. In *ASME 2018 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Cleveland, Ohio.

[8] Engineering for Global Development Keynote and Forum. In *ASME 2017 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Cleveland, Ohio.

[9] Engineering for Global Development Keynote and Forum. In *ASME 2016 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Charlette, North Carolina.

[10] Engineering for global development: Use inspired solutions to water-energy nexus challenges. *2016 ASME Engineering for Global Development and ASU LightWorks series*. Tempe, Arizona.

[11] Engineering for Global Development Keynote and Forum. In *ASME 2015 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Boston, Massachusetts.

[12] Engineering for Global Development Keynote and Forum. In *ASME 2014 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Buffalo, New York.

[13] Case studies in global development: Research and applications. *ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE)*. Montreal, Canada.

[14] Fostering an environment for global development in academia. *ASME 2014 International Mechanical Engineering Congress and Exposition (IMECE)*. Montreal, Canada.

Workshops and Tutorials: 25

[1] Operational Energy Training. August 26-27, 2025. Naval Postgraduate School.

[2] Microgrid Training for a Growing Workforce. April 14, 2025. Microgrid Knowledge. Dallas, Texas.

[3] NRECA Microgrid Boot Camp. January 28-30, 2025. Mesa, Arizona.

[4] Military Energy Resilience Catalyst. January 15-16, 2024. Mesa, Arizona.

[5] Reliability and Resilience for Islands. September 23, 2024. Pertamina.

[6] Just Energy Transition for Sub-Saharan Africa. September 12, 2024. U.S. Agency for International Development, Washington, D.C.

[7] Creating an Enabling Environment for Off-grid Electrification in Pacific Island Countries. July 2, 2024. Suva, Fiji.

[8] Microgrid system sizing for renewables and resilience. May 9, 2024. Oahu, Hawaii.

[9] Microgrids for installation energy resilience. December 1, 2023. Washington, D.C.

[10] Engineering design for island energy resilience. November 13, 2023. Suva, Fiji.

[11] Energy solutions to limit global warming as close to 1.5°C as possible by 2050. Global Futures Conference 2023. September 19, 2023. New York, New York.

[12] National decarbonization strategies for Mongolia. June 12-14, 2023. Tempe, Arizona.

[13] National decarbonization strategies for Malaysia. May 22-23, 2023. Tempe, Arizona.

[14] Grid modernization for utilities in Central Asia. November 29-30, 2022. Virtual

[15] Energy cooperative microgrid training. November 14-18, 2022. Molokai, Hawaii.

[16] Grid modernization for utilities in Southeast Asia. November 9-10, 2022. Virtual

[17] Microgrid Concepts and Case Studies. October 11, 2022. Los Angeles Cleantech Incubator.

[18] Sustainability and the future of the food and beverage industry. April 20-21, 2022. Tempe, Arizona.

[19] Alaska summit for place-based resilience. Mini-grid moderator. September 4-6, 2019.

[20] Installation neXt Hawaii (IXH) – Resiliency. Energy workshop moderator. January 29-31, 2019. Marine Corps Base Hawaii, Marine Corps Installation Command.

[21] Microgrid commissioning and operation through a hands-on tutorial and demonstration. In the *86th (2018) Military Operations Research Society (MORS) Symposium*. Monterey, California.

[22] Interactive real-time simulations of power-water-cyber networks to enhance planning and operations for resiliency. In the *86th (2018) Military Operations Research Society (MORS) Symposium*. Monterey, California.

[23] Designing global development engineering courses and programs. In *ASME 2014 International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. Buffalo, New York.

[24] Off-grid power: analysis and practice. *IEEE 2013 Global Humanitarian Technology Conference (GHTC)*. San Jose, California.

[25] Participatory methods and intercultural intelligence. University of Colorado at Boulder. 2012.

Invited Talks: 50

[1] Mini-grid Design to Deployment at Scale in Sub-Saharan Africa. Rockefeller Foundation, Bellagio, Italy. November 12, 2025.

[2] Accelerating Deployment of Resilient Microgrids in DoD Installations. 7th Annual DoD Energy and Power Summit. Washington, D.C. July 10, 2024.

[3] Virtual Power Plants (VPPs) and Aggregation. Microgrid Knowledge. Dallas, Texas. April 14, 2025.

[4] Powering Tomorrow. Rebel Revolution. January 22, 2025.

[5] Accelerating the Energy Transition and Economic Development. University of Nevada Las Vegas. January 22, 2025.

[6] Transferring Capability for Microgrids and Resilience in DoD Installations. SERDP/ESTCP Symposium. December 5, 2024.

[7] Leveraging Federal Funding for Tibal Electrification Projects. Construction in Indian Country, Phoenix, Arizona. October 3, 2024.

[8] Threads in the Global Energy Transition. CAISO Board of Governors and WEIM Governing Board, Tempe, Arizona. September 28, 2024.

[9] Workforce Development for Installation Microgrids. SERDP/ESTCP Webinar. Virtual. June 13, 2024.

[10] Public-private partnerships for a sustainable future in food and beverage. Multiunit Foodservice Equipment Symposium. April 27, 2023.

[11] Accelerating energy access and our low-carbon future. Electrical and Computer Engineering Colloquium Talk, University of Washington. April 18, 2023.

[12] Microgrids for Resilience with an ROI. IEEE Green Energy Conference. April 8, 2022.

[13] Energy Storage and Microgrids for Improved Installation Energy Resilience. SERDP/ESTCP Symposium. November 30, 2021.

[14] Peer-to-Peer Learning Workshop for Island Energy Solutions. November 29, 2021.

[15] Pacific Islands Energy Roundtable. April 14, 2021.

[16] Microgrid Challenges and Opportunities. Smart Electric Power Alliance. January 27, 2021.

[17] Design, Modeling, and Control of Hybrid ESS for DoD Microgrids. SERDP/ESTCP Symposium. December 4, 2020.

[18] Scaling microgrids for rural electrification and economic development. Engineering 4 Change. August 25, 2020.

[19] Enabling the Potential of Microgrids for Energy Security and Economic Development. Colombia Asociación Energías Renovables (SER). August 13, 2020.

[20] Microgrid training for enhancing installation resilience. Military Energy Resilience Catalyst. April 8, 2020.

[21] Engineering for Peace: Conceptual Foundations and Research Applications. Brigham Young University. February 14, 2020.

[22] Creating a Workforce Development Pipeline for Energy Security and Resilience. University of Utah. February 13, 2020.

[23] Powering Sustainability with Microgrids and Workforce Development. Walton Sustainability Solutions Festival. February 5, 2020.

[24] Microgrids for defense, civilian, and humanitarian applications. University of St. Thomas. November 15, 2019.

[25] Workforce development for resiliency solutions. Construction In Indian Country Conference. Maricopa, Arizona. November 7, 2019.

[26] Microgrids for defense, civilian, and humanitarian applications. University of Memphis. November 1, 2019.

[27] Microgrid Training for Advanced Careers in Energy. September 17, 2019. Scottsdale, Arizona.

[28] Training for innovation in energy security. Veterans Advanced Energy Project, Atlantic Council. August 13, 2019.

[29] Advanced optimization: military precision for advanced microgrids. Microgrid 2019 Knowledge Conference. May 15, 2019.

[30] From energy access to grid resiliency: a story of anthropology, engineering, and business. Pennsylvania State University. March 29, 2019.

[31] From energy access to grid resiliency: a story of anthropology, engineering, and business. Oregon State University. February 8, 2019.

[32] Preparing the future workforce for a changing energy economy. East-West Center, Honolulu, Hawaii. February 1, 2019.

[33] From energy access to grid resiliency: A story of anthropology, engineering, and business. University of Alaska Fairbanks. September 14, 2018.

[34] Energy security through grid modernization and microgrids for civilian and defense applications. Veteran Energy Seminar. San Diego, California. August 18, 2018.

[35] Strategies for mini-grid training and capacity development. World Bank Mini Grid Learning Action Event and Global Technical Conference. Abuja, Nigeria. December 7, 2017.

[36] Powering global development. IEEE Conference on Technologies for Sustainability (SusTech). Phoenix, Arizona. November 14, 2017.

[37] Rapidly deployable power and water solutions for disaster response and refugees. University of Michigan. Ann Arbor, Michigan. October 13, 2017.

[38] Powering global engineering and development. Colorado School of Mines. Golden, Colorado. October 6, 2017.

[39] Advances in microgrid design and control: research to commercialization. National Autonomous University of Mexico. Mexico City, Mexico. March 30, 2017

[40] Energy innovations from concept to construction. IEEE Region 6 Life Member Event. Tempe, Arizona. December 15, 2015.

[41] Energy innovations from concept to construction. Sandia National Laboratory. Albuquerque, New Mexico. July 16, 2015.

[42] Engineering complex energy systems. Naval Postgraduate School. Monterrey, California. January 15, 2015.

[43] Designing for impact. Pennsylvania State University. August 21, 2014.

[44] Decision making in micro-grids from concept to construction. Arizona Corporation Commission. May 28, 2014.

[45] Evaluating village energy opportunities. University of California at Berkeley. October 24, 2013.

[46] Engineering energy solutions for rural Africa. Sonoma State University. October 24, 2013.

[47] Designing sustainable energy systems. Inaugural Forum on Groundbreaking Research in Engineering Design: Fueling Growth in Emerging Markets, 2013 ASME International Design Engineering and Technical Conference and Computers and Information in Engineering Conference. Portland, Oregon. August 6, 2013.

[48] Designing for sustainability of community projects. Colorado School of Mines. November 1, 2012.

[49] Village energy systems: understanding the problem and comparing rural energy options. 2012 IEEE Global Humanitarian Technology Conference. Seattle, Washington. October 23, 2012.

[50] Safety guidelines for cooking stoves in developing countries. International Workshop on Clean and Efficient Cook Stoves. The Hague, Netherlands. February 29, 2012

Refereed Conference Presentations: 29

[1] A. Kazemtarghi, N. Ishraq, P. Rathod, A. Mallik and N. Johnson, (2023) "DC Link Voltage Optimization for Efficiency Enhancement of Electric Vehicle Onboard Chargers," In *IEEE 2nd Industrial Electronics Society Annual On-Line Conference (ONCON)*, SC, USA, 2023, pp. 1-6, doi: 10.1109/ONCON60463.2023.10431027

[2] Kemabonta, T., van Hove, E., Johnson, N. G., Alsanad, A. (2022). Accelerating Mini-grid Feasibility Assessments with Rapid Engineering and Business Model Evaluation. In *IEEE 2022*

Global Humanitarian Technology Conference (GHTC). Institute of Electrical and Electronics Engineers. DOI: 10.1080/23789689.2020.1788230

[3] Saha, S., Gorog, C., Moser, A., Scaglione, A., & Johnson, N. G. (2020). Integrating Hardware Security into a Blockchain-Based Transactive Energy Platform. In *North American Power Symposium 2020*. DOI: 10.1109/NAPS50074.2021.9449802

[4] Roberts, C., Ngo, S. T., Milesi, A., Peisert, S., Arnold, D., Saha, S., Scaglione, A., Johnson, N. G., Kocheturov, A., & Fradkin, D. (2020). Deep Reinforcement Learning for DER Cyber-Attack Mitigation. *In 2020 IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm)*. IEEE. DOI: 10.1109/SmartGridComm47815.2020.9302997

[5] van Hove, E., Van Cleve, C., Mobley, A., Janko, S., Plum, A., Zamudio, A., Schmaltz, J., Nollete, J., Hampton, J., Johnson, N. G. (2020). Rapidly Deployable Containerized Medical Clinic for Refugee Settings. In *IEEE 2020 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC46280.2020.9342950

[6] Saha, S., Schweitzer, E., Scaglione, A., & Johnson, N. G. (2019). A framework for generating synthetic distribution feeders using OpenStreetMap. In *North American Power Symposium 2019*. DOI: 10.1109/NAPS46351.2019.9000187

[7] Saha, S., & Johnson, N. G. (2018). Point-on-wave analysis of three-phase induction motor under fault external to the power plant. In *IEEE 2018 Power & Energy Society (PES) General Meeting*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/PESGM.2018.8586031

[8] Janko, S., & Johnson, N. G. (2017). Design of an agent-based technique for controlling interconnected distributed energy resource transactions. In *ASME 2017 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2017-68346

[9] Saha, S., Janko, S., Johnson, N. G., Podmore, R., Riaud, A., & Larsen, R. (2016). A universal charge controller for integrating distributed energy resources. In *IEEE 2016 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2016.7857320

[10] Lopes, M. L., Johnson, N. G., Miller, J. E., & Stechel, E. B. (2016). Concentrating solar power systems with advanced thermal energy storage for emerging markets. In *IEEE 2016 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2016.7857318

[11] Janko, S., Atkinson, S., & Johnson, N. (2016). Design and fabrication of a containerized micro-grid for disaster relief and off-grid applications. In *ASME 2016 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2016-60296

[12] Miller, J. E., Ambrosini, A., Babiniec, S. M., Coker, E. N., Ho, C. K., Al-Ansary, H., Jeter, S. M., Loutzenhiser, P. G., Johnson, N. G., & Stechel, E. B. (2016). High performance reduction/oxidation metal oxides for thermochemical energy storage (PROMOTES). In *ASME 2016 10th International Conference on Energy Sustainability collocated with the ASME 2016 Power Conference and the*

ASME 2016 14th International Conference on Fuel Cell Science, Engineering and Technology. American Society of Mechanical Engineers. DOI: 10.1115/ES2016/59660

[13] Janko, S. A., Gorman, B. T., Singh, U. P., & Johnson, N. G. (2015). High penetration residential solar photovoltaics and the effects of dust storms on system net load. In *ASME 2015 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2015-48030

[14] Agyemang, M., & Johnson, N. G. (2015). Development of biomass energy technologies and business models for Southern Africa. In *ASME 2015 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2015-48033

[15] Gorman, B. T., Johnson, N. G., Miller, J. E., & Stechel, E. B. (2015). Thermodynamic investigation of concentrating solar power with thermochemical storage. In *ASME 2015 9th International Conference on Energy Sustainability collocated with the ASME 2015 Power Conference, the ASME 2015 13th International Conference on Fuel Cell Science, Engineering and Technology, and the ASME 2015 Nuclear Forum*. American Society of Mechanical Engineers. DOI: 10.1115/ES2015-49810

[16] Reilly, K. M., Birner, M. T., & Johnson, N. G. (2015). Measuring air quality using wireless self-powered devices. In *IEEE 2015 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2015.7343983

[17] McComb, C., Santaeufemia, P. S., Johnson, N. G., & Shimada, K. (2014). Identifying technical and economic improvements to the MoneyMaker Hip pump through multi-objective optimization. In *IEEE 2014 Global Humanitarian Technology Conference (GHTC).* Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2014.6970302

[18] Santaeufemia, P. S., Johnson, N. G., McComb, C., & Shimada, K. (2014). Improving irrigation in remote areas: Multi-objective optimization of a treadle pump. In *ASME 2014 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.* American Society of Mechanical Engineers. DOI: 10.1115/DETC2014-35463

[19] Johnson, N. G., & Granato, M. (2014). Single cell battery charger for portable electronic devices in developing countries. In *ASME 2014 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.* American Society of Mechanical Engineers. DOI: 10.1115/DETC2014-35457

[20] Carberry, A., Johnson, N., & Henderson, M. (2014). A practice-then-apply scaffolding approach to engineering design education. In *2014 Frontiers in Education Conference (FIE)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/FIE.2014.7044291

[21] Johnson, N. G., Glassmire, J. W., & Lilienthal, P. D. (2013). Techno-economic design of off-grid domestic lighting solutions using HOMER. In *ASME 2013 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2013-13630

[22] Johnson, N. G., & Bryden, K. M. (2013). Establishing consumer need and preference for design of village cooking stoves. In *ASME 2013 International Design Engineering Technical Conferences*

(IDETC) and Computers and Information in Engineering (CIE) Conference. American Society of Mechanical Engineers. DOI: 10.1115/DETC2013-13629

[23] Johnson, N. G., Glassmire, J. W., & Lilienthal, P. D. (2012). Comparing power system architectures for domestic lighting in isolated rural villages with HOMER. In *IEEE 2012 Global Humanitarian Technology Conference (GHTC)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2012.55

[24] Johnson, N. G., & Bryden, K. M. (2012). The impact of cookstove adoption and replacement on fuelwood savings. In *IEEE 2012 Global Humanitarian Technology Conference (GHTC)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/GHTC.2012.56

[25] Johnson, N. G., Lilienthal, P., & Schoechle, T. (2011). Modeling distributed premises-based renewables integration using HOMER. *Grid-Interop*.

[26] Bryden, K. M., & Johnson, N. G. (2011). Understanding rural village energy needs and design constraints. In *ASME 2011 International Design Engineering Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference*. American Society of Mechanical Engineers. DOI: 10.1115/DETC2011-48669

[27] Johnson, N. G., Hallam, A., Conway, S., & Bryden, M. (2006). Sustainable and market-based analyses of cooking technologies in developing countries. In *ASME 2006 International Mechanical Engineering Congress and Exposition* (IMECE). American Society of Mechanical Engineers. DOI: 10.1115/IMECE2006-15375

[28] Johnson, N. G., Karthikeyan, B., Ashlock, D. A., & Bryden, K. M. (2006). AMoEBA image segmentation: modeling of individual Voronoi tessellations. In *IEEE 2006 Congress Evolutionary Computation (CEC)*. Institute of Electrical and Electronics Engineers. DOI: 10.1109/CEC.2006.1688569

[29] Johnson, N. G., Bryden, M., & Xiao, A. (2005). Risk analysis and safety evaluation of biomass cookstoves. In *ASME 2005 International Mechanical Engineering Congress and Exposition* (IMECE). American Society of Mechanical Engineers. DOI: 10.1115/IMECE2005-82112

Non-Referred Conference Presentations: 15

[1] Kemabonta, T., Johnson, N.G. (2024). Institutional Frameworks to Facilitate Power Sector Transformation in West Africa. In *International Energy Justice Early Career Conference*. Tilburg University, the Netherlands.

[2] Kemabonta, T., Johnson, N.G. (2023). Watts Happening? Understanding Electric Power Sector Reforms in West Africa. In *Doctoral Student Participatory Workshop on Climate and Energy Decision Making*. Carnegie Mellon University, USA.

[3] Kemabonta, T., Johnson, N.G. (2023). Energy Access and the Implications of State and Private Ownership of Electric Utilities in Sub-Saharan Africa. In *Interdisciplinary PhD Workshop in Sustainable Development*. Columbia University, USA.

[4] Wodicker, M., Johnson, N. G. (2022). Coupled Dispatch of Microgrids for Islanded Resilience and Grid-Connected Economics. In *90th (2022) Military Operations Research Society (MORS) Symposium*. West Point, New York.

[5] Kemabonta, T., Johnson, N.G. (2022). Calculation, Knowledge and Entrepreneurial Action in the Production of Electricity: Case Studies of Nigeria and the United States. In *Austrian Economics Research Conference (AERC)*. Auburn, Alabama.

[6] Van Cleve, C., Mobley, A., Bowersox, D., Janko, S., Johnson, N. G. (2019). Turnkey infrastructure for power, water, and healthcare services in contingency operations. In *87th (2019) Military Operations Research Society (MORS) Symposium*. Colorado Springs, Colorado.

[7] Janko, S., Johnson, N. G. (2019). Dynamic group formation in grid-connected multi-microgrid networks. In *87th (2019) Military Operations Research Society (MORS) Symposium*. Colorado Springs, Colorado.

[8] Nelson, J., Johnson, N. G. (2019). Design and control of resilient microgrids. In *87th (2019) Military Operations Research Society (MORS) Symposium*. Colorado Springs, Colorado.

[9] Janko, S., Johnson, N. G. (2018). Transactive energy networks for multi-node microgrids. In *86th (2018) Military Operations Research Society (MORS) Symposium*. Monterey, California.

[10] Hamel, D., Shammya, S., Bondank, E., Gerson, E., Jamei, M., Chester, M., Scaglione, A., Johnson, N. G. (2018). Simulating critical infrastructure vulnerabilities and resilience to extreme weather and cyber attacks. In *86th (2018) Military Operations Research Society (MORS) Symposium*. Monterey, California.

[11] Gorman, B., Hamel, D., Bondank, E., Barela, E., Scott, S., Carmody, C., Lajom, A., Chester, M., Johnson, N. G. (2017). Real-time simulation and control of interdependent power and water networks using Resilient Infrastructure Simulation Environment (RISE). In *2017 International Society on Sustainable Systems and Technologies (ISSST)*. Chicago, Illinois.

[12] Johnson, N. G., Mobley, A., Janko, S., Flores, J., Yasaei, Y. (2017). A mobile microgrid training platform for educating actives, veterans, and remote deployments. In *85th (2017) Military Operations Research Society (MORS) Symposium*. West Point, New York.

[13] Hamel, D., Gorman, B., Bondank, E., Barela, E., Gerson, E., Chester, M., Johnson, N. G. (2017). Real-time modeling and analytics of interdependent power-water networks for improved infrastructure resiliency. In *85th (2017) Military Operations Research Society (MORS) Symposium*. West Point, New York.

[14] Johnson, N. G., Janko, S., Saha, S., Flores, J., Mobley, A., Atkinson, S., Brandt, W. (2016) A micro-grid boot camp for civilian and military applications. In *84th (2016) Military Operations Research Society (MORS) Symposium*. Quantico, Virginia.

[15] Lucero, B., Johnson, N. G., Stechel, E. B., Ermanoski, I., McDaniel, A. (2015) Thermodynamic analysis of concentrating solar tower with cascading receivers and metal oxide heat transfer fluid to produce pure hydrogen. In *ASME 2015 Power and Energy Conversion Conference*. San Diego, California.

Research Support

Summary of Research Support

Below is a summary of sponsored projects at ASU from 2013-present.

Total Count	PI Count	ASU Value ($)*	PI Recognized Value ($)**
76	50	$53,635,666	$26,872,530

* ASU value is the amount of funding for the ASU portion of the overall agreement (relevant in circumstances in which ASU was not the prime).
** PI recognized value is the PI's share that is equated as percentage of the total value of each award.

Awards to Date: 76

[1] Title: Rapid Production of Digital Twins for Installation Energy Resilience
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $1,400,000 (total); $1,200,000 (at ASU as prime, with co-performer NRL funded under separate intergovernmental agreement)
Start date: 2026
Duration: 2 yr
Role: PI
Performers: ASU, Naval Research Laboratory (NRL)

[2] Title: Transferring Capability for Microgrids and Resilience in DoD Installations (Phase 2)
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $800,000 (total); $600,000 (at ASU as prime, with co-performer NREL funded under separate intergovernmental agreement)
Start date: 2026
Duration: 2 yr
Role: PI
Performers: ASU, National Renewable Energy Laboratory (NREL)

[3] Title: Advancing Modern Power through Utility Partnerships (AmpUp) – Guatemala Rural Electrification
Sponsor: U.S. Agency for International Development (USAID)
Funding: $5,000,000 (total); $1,140,348 (sub-agreement to ASU via USEA)
Start date: 2025
Duration: 3 yr
Role: Co-PI (award) and PI (at ASU)
Performers: United States Energy Association (USEA), ASU, NRECA International, Ltd.

[4] Title: Enabling Environment for Mini-grid Project Implementation in Fiji
Sponsor: Anonymous Donor
Funding: $2,105,564

Start date: 2025
Duration: 2 yr
Role: PI
Performers: ASU, UN Development Programme (UNDP)

[5] Title: Evaluation of ISR and Counter-Drone Technology Energy Demands and Solutions
Sponsor: U.S. Operational Energy Prototyping Fund (OEPF)
Funding: $4,782,000 (total); $200,000 (sub-agreement to ASU via USEA)
Start date: 2025
Duration: 2 yr
Role: Co-PI (award) and PI (at ASU)
Performers: Digital Force Technologies, Defense Innovation Unit (DIU), Naval Information Warfare Center Pacific (NIWC-Pac), ASU

[6] Title: Standardizing Energy Resilience Analyses for Installation Design and Investment
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $925,000 (total); $575,000 (at ASU as prime, with co-performer NREL funded under separate intergovernmental agreement)
Start date: 2025
Duration: 2 yr
Role: PI
Performers: ASU, National Renewable Energy Laboratory (NREL)

[7] Title: Advancing Modern Power through Utility Partnerships (AmpUp) – Kazakstan Cybersecurity Training Center, Fiji Rural Electrification, Utility Leadership Training
Sponsor: U.S. Agency for International Development (USAID)
Funding: $1,100,000 (total); $590,000 (sub-agreement to ASU via USEA)
Start date: 2024
Duration: 1 yr
Role: Co-PI (award) and PI (at ASU)
Performers: United States Energy Association (USEA), ASU

[8] Title: Achieving Resilience, Sovereignty, and Economic Independence through Community Solar
Sponsor: U.S. Environmental Protection Agency (EPA)
Funding: $9,114,066
Start date: 2024
Duration: 5 yr
Role: Co-PI
Performers: ASU, Hopi Utilities Corporation, BoxPower Inc., Xendee Corporation

[9] Title: Hopi Solar for All
Sponsor: U.S. Environmental Protection Agency (EPA)
Funding: $25,120,000 (total); $3,043,284 (sub-agreement to ASU via Hopi Utilities Corporation)
Start date: 2024
Duration: 5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: Hopi Utilities Corporation, ASU, Hopi Renewable Energy Office

[10] Title: Hopi CPRG Implementation
Sponsor: U.S. Department of the Interior
Funding: $20,100,635 (total); $299,954 (sub-agreement to ASU via Hopi Utilities Corporation)
Start date: 2024
Duration: 5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: Hopi Utilities Corporation, ASU, Woven Energy

[11] Title: Hopi Electrifying Tribal Communities
Sponsor: U.S. Department of the Interior
Funding: $4,200,000 (total); $2,097,282 (sub-agreement to ASU via Hopi Utilities Corporation)
Start date: 2024
Duration: 5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: Hopi Utilities Corporation, ASU, Hopi Renewable Energy Office

[12] Title: Planning: CRISES: Center for Socio-Technological Transformation
Sponsor: U.S. National Science Foundation (NSF)
Funding: $100,000
Start date: 2024
Duration: 1 yr
Role: Co-PI
Performers: ASU

[13] Title: YUM Lifecycle Assessment
Sponsor: Yum! Brands
Funding: $150,000
Start date: 2024
Duration: 1 yr
Role: Co-PI
Performers: ASU

[14] Title: Supplemental Training Activities (Distribution Enablement)
Sponsor: Salt River Project (SRP)
Funding: $12,100
Start date: 2024
Duration: 0.5 yr
Role: PI
Performers: ASU

[15] Title: State of Arizona Office of Resiliency Climate Action Plan
Sponsor: U.S. Environmental Protection Agency (EPA)
Funding: $2,000,000 (total); $1,030,000 (sub-agreement to ASU via State of Arizona Office of Resiliency)
Start date: 2024
Duration: 4 yr
Role: Co-PI
Performers: State of Arizona Office of Resiliency, ASU, Northern Arizona University

[16] Title: Mini-grid Load Estimation and Community Engagement
Sponsor: Anonymous Donor
Funding: $100,000
Start date: 2023
Duration: 1.5 yr
Role: PI
Performers: ASU, Community Connect Limited

[17] Title: Effects of Electric Vehicle Adoption on Utility Operations and Revenue Models: Phase II
Sponsor: Salt River Project (SRP)
Funding: $70,000
Start date: 2023
Duration: 1 yr
Role: PI
Performers: ASU

[18] Title: Demonstration of Optimized Residential Energy Management System and Precooling: Phase II
Sponsor: Salt River Project (SRP)
Funding: $69,999
Start date: 2023
Duration: 1 yr
Role: PI
Performers: ASU, Inergy Systems

[19] Title: Electrifying Operational Energy in Contested Logistics
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2023
Duration: 1.5 yr
Role: PI
Performers: ASU

[20] Title: Accelerating Solar Mini-grid Deployment in Fiji
Sponsor: U.S. Trade and Development Agency (USTDA)
Funding: $750,000
Start date: 2023
Duration: 1.5 yr
Role: PI
Performers: ASU, Global Green Growth Institute (GGGI), Xendee Corporation, Government of Fiji

[21] Title: Integrated Energy Systems for Enhanced Climate Adaptation
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $845,094 (total); $720,044 (at ASU as prime, with co-performer CERL funded under separate intergovernmental agreement)
Start date: 2023
Duration: 2 yr
Role: PI

Performers: ASU, Converge Strategies, U.S. Army Engineer Research and Development Center (ERDC) Construction Engineering Research Laboratory (CERL)

[22] Title: STEM Training for Resilience In a Defense Environment (STRIDE)
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $600,000
Start date: 2023
Duration: 3 yr
Role: PI
Performers: ASU

[23] Title: Coordinated Control and Cyber-secure Communication in a Distributed Host Nation Microgrid System
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $249,999
Start date: 2023
Duration: 1.5 yr
Role: PI
Performers: ASU

[24] Title: The ASU-Starbucks Center for the Future of People and the Planet (Phase 2)
Sponsor: Starbucks Corporation
Funding: $1,298,112
Start date: 2023
Duration: 1 yr
Role: PI
Performers: ASU

[25] Title: Advancing Modern Power through Utility Partnerships (AmpUp) – Kenya Engendering Energy, Utility Leadership Training, Circular Economy, Energy Innovation Centers
Sponsor: U.S. Agency for International Development (USAID)
Funding: $1,200,000 (total); $538,000 (sub-agreement to ASU via USEA)
Start date: 2022
Duration: 1 yr
Role: Co-PI (award) and PI (at ASU)
Performers: United States Energy Association (USEA), ASU, NRECA International, Ltd., SEUGRA Consulting, LLC, MK Advisors

[26] Title: Energy II IDIQ: Mongolia Energy Governance
Sponsor: U.S. Agency for International Development (USAID)
Funding: $7,000,000 (total); $103,904 (sub-agreement to ASU via Abt Associates)
Start date: 2022
Duration: 5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: Abt Associates, ASU

[27] Title: Providing Energy Resilience with an ROI
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $594,698

Start date: 2022
Duration: 2 yr
Role: PI
Performers: ASU, Veregy, ELM, Climatec, LLC, Salt River Project, Arizona Department of Emergency and Military Affairs

[28] Title: Transferring Capability for Microgrids and Resilience in DoD Installations
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $1,050,466 (total); $800,466 (at ASU as prime, with co-performer NREL funded under separate intergovernmental agreement)
Start date: 2022
Duration: 2 yr
Role: PI
Performers: ASU, National Renewable Energy Laboratory (NREL), Slipstream Group, Inc., Converge Strategies, LLC

[29] Title: High-Resolution Metering & State Estimation for Low-Cost Real-Time Awareness and Improved Microgrid Design
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $816,000 (total); $410,605 (sub-contract to ASU via 350Solutions, Inc.)
Start date: 2022
Duration: 2.5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: 350Solutions, Inc., ASU, Meazon

[30] Title: Assessing the Utility of Safe-to-fail Design to Improve Climate Hazards Resilience of Interdependent Infrastructure Systems
Sponsor: U.S. National Science Foundation (NSF) and National Institute of Standards and Technology (NIST)
Funding: $400,000
Start date: 2022
Duration: 2 yr
Role: Co-PI
Performers: ASU

[31] Title: Enhancing Installation Resilience with Electric Vehicle Fleets
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2022
Duration: 1.5 yr
Role: PI
Performers: ASU

[32] Title: Building Load Aggregation and Adaptive Power Management for Improved Resilience
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $249,999
Start date: 2022
Duration: 1.5 yr

Role: PI
Performers: ASU, Climatec, LLC

[33] Title: Micro-factories with Advanced Manufacturing to Support Adaptive Basing at Scale
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2022
Duration: 1.5 yr
Role: Co-PI
Performers: ASU

[34] Title: Effects of Electric Vehicle Adoption on Utility Operations and Revenue Models
Sponsor: Salt River Project (SRP)
Funding: $65,000
Start date: 2022
Duration: 1 yr
Role: PI
Performers: ASU

[35] Title: Demonstration of Optimized Residential Energy Management System and Precooling
Sponsor: Salt River Project (SRP)
Funding: $70,000
Start date: 2022
Duration: 1 yr
Role: PI
Performers: ASU, Inergy Systems

[36] Title: The ASU-Starbucks Center for the Future of People and the Planet (Phase 1)
Sponsor: Starbucks Corporation
Funding: $1,066,667
Start date: 2021
Duration: 1 yr
Role: PI
Performers: ASU

[37] Title: Testbed for Energy Resilience and Cyber-physical Security
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $906,692
Start date: 2021
Duration: 1 yr
Role: PI
Performers: ASU

[38] Title: Securing Installation IoT Devices and 5G Communications for Adaptive Basing
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $233,800
Start date: 2021
Duration: 1.5 yr
Role: PI
Performers: ASU, Cornell Tech

[39] Title: ASU-APS Battery Implementation at West Campus
Sponsor: Arizona Public Service
Funding: $800,000
Start date: 2022
Duration: 2 yr
Role: Co-PI
Performers: ASU

[40] Title: Building Innovation into Installation Modernization Strategies
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2021
Duration: 2 yr
Role: Co-PI
Performers: ASU, ATOLLO

[41] Title: Design, Modeling, and Control of Hybrid ESS for DoD Microgrids (Phase 2)
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $668,814
Start date: 2020
Duration: 1.5 yr
Role: PI
Performers: ASU, 350Solutions, Inc., XENDEE Corporation, Ageto, LLC

[42] Title: GCR: Social, Ecological, and Technological Infrastructure Systems for Urban Resilience
Sponsor: U.S. National Science Foundation
Funding: $3,699,349
Start date: 2020
Duration: 5 yr
Role: Senior Personnel
Performers: ASU, Georgia State University, Barnard College, The New School

[43] Title: Microgrid Control with Self-regulating Feedback to Enhance Resilience and Economics
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $249,999
Start date: 2020
Duration: 1.5 yr
Role: PI
Performers: ASU

[44] Title: Installation Energy Resilience Using Machine Learning for Continuity of Operation
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2020
Duration: 1.5 yr
Role: PI
Performers: ASU

[45] Title: Situation Awareness and Smart Reconfiguration of Ad-hoc Military Electric Grids Using a Digital-twin
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $249,964
Start date: 2020
Duration: 1.5 yr
Role: Co-PI
Performers: ASU

[46] Title: Rapid Capability Development for a Cyber-effective Navy
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $250,000
Start date: 2020
Duration: 1.5 yr
Role: PI
Performers: ASU

[47] Title: Workforce Development Pipeline for Microgrid and Advanced Power Systems Careers
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $748,810
Start date: 2019
Duration: 3 yr
Role: PI
Performers: ASU, XENDEE Corporation, Incremental Systems Corporation (IncSys), Naval Information Warfare Center – Pacific

[48] Title: Design, Modeling, and Control of Hybrid ESS for DoD Microgrids
Sponsor: U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
Funding: $303,723 (total); $124,356 (sub-agreement to ASU via 350Solutions, Inc.)
Start date: 2018
Duration: 0.5 yr
Role: Co-PI (award) and PI (at ASU)
Performers: 350Solutions, Inc., ASU, XENDEE Corporation

[49] Title: Distributed Electrical Architectures from Circuits to Systems
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $1,999,935
Start date: 2018
Duration: 2 yr
Role: PI
Performers: ASU, UH-Manoa Hawaii Natural Energy Institute (HNEI), XENDEE Corporation, Incremental Systems Corporation (IncSys), Ageto, LLC, BlockFrame, Inc., PowerData Corporation, Pipeline Worldwide, DIRTT Environmental Solutions, SolarNow Services LTD, Medical Teams International (MTI), Gensler, Industrial Water Innovations, Inc., Tarkett, Wholesale Floors, LLC

[50] Title: Aggregating and Controlling Distributed Energy Resources for Campus-scale Peak Shaving and Load Shifting at the ASU Polytechnic Campus
Sponsor: Salt River Project (SRP)

Funding: $49,731
Start date: 2018
Duration: 1 yr
Role: PI
Performers: ASU

[51] Title: Next-generation Energy Technologies and Systems for Civilian and Military Applications (Phase 2)
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $3,000,000
Start date: 2018
Duration: 3 yr
Role: Co-PI
Performers: ASU

[52] Title: Energy Management Systems for Residential Homes (Phase 3)
Sponsor: Salt River Project (SRP)
Funding: $74,580
Start date: 2017
Duration: 1 yr
Role: PI
Performers: ASU

[53] Title: Recognition & Modeling of SRP Assets from Video & Images
Sponsor: Salt River Project (SRP)
Funding: $62,299
Start date: 2017
Duration: 1 yr
Role: PI
Performers: ASU

[54] Title: NSF Engineering Research Center for Quantum Energy and Sustainable Solar Technologies: QESST
Sponsor: U.S. National Science Foundation (NSF)
Funding: $300,000
Start date: 2017
Duration: 1 yr
Role: Co-PI
Performers: ASU

[55] Title: Mini-grid Training and Global Strategic Planning
Sponsor: World Bank
Funding: $46,360
Start date: 2017
Duration: 0.5 yr
Role: PI
Performers: ASU

[56] Title: Grid Simulation and Renewable Energy Integration (Phase 2)
Sponsor: Incremental Systems Corporation (IncSys)
Funding: $45,000

Start date: 2017
Duration: 1 yr
Role: PI
Performers: ASU

[57] Title: Toward an Energy and Economic Transition on the Navajo Nation
Sponsor: U.S. Economic Development Administration (EDA)
Funding: $99,999
Start date: 2017
Duration: 1 yr
Role: Co-PI
Performers: ASU

[58] Title: A Holistic Water Solution for Undeserved and Refugee Host Communities in Lebanon and Jordon
Sponsor: U.S. Agency for International Development (USAID)
Funding: $1,947,470
Start date: 2016
Duration: 2 yr
Role: Co-PI
Performers: ASU, Mercy Corps, H2O for Humanity, Zero Mass Water, Rene Moawad Foundation, GreenCo Water

[59] Title: Energy Management Systems for Residential Homes (Phase 2)
Sponsor: Salt River Project (SRP)
Funding: $48,557
Start date: 2016
Duration: 1 yr
Role: PI
Performers: ASU

[60] Title: Optimizing Residential-scale Thermal Energy Storage Systems with Precooling
Sponsor: Salt River Project (SRP)
Funding: $58,408
Start date: 2016
Duration: 1 yr
Role: PI
Performers: ASU

[61] Title: Open Source Universal Charge Controller for Off-grid Power
Sponsor: Institute of Electrical and Electronics Engineers (IEEE)
Funding: $22,300
Start date: 2016
Duration: 1 yr
Role: PI
Performers: ASU

[62] Title: Monitoring and Managing Distributed Energy Resources through Interoperable IoT Solutions
Sponsor: Verizon Foundation
Funding: $109,830

Start date: 2016
Duration: 1 yr
Role: PI
Performers: ASU

[63] Title: Energy Management Systems for Residential Homes (Phase 1)
Sponsor: Salt River Project (SRP)
Funding: $63,250
Start date: 2015
Duration: 1 yr
Role: PI
Performers: ASU

[64] Title: Next-generation Energy Technologies and Systems for Civilian and Military Applications
Sponsor: U.S. Department of Defense Office of Naval Research (ONR)
Funding: $1,499,998
Start date: 2015
Duration: 2 yr
Role: Co-PI
Performers: ASU

[65] Title: NRG Containerized Micro-grid
Sponsor: NRG Renew LLC
Funding: $52,087
Start date: 2015
Duration: 1 yr
Role: PI
Performers: ASU

[66] Title: Grid Simulation and Renewable Energy Integration
Sponsor: Incremental Systems Corporation
Funding: $76,515
Start date: 2015
Duration: 2 yr
Role: PI
Performers: ASU

[67] Title: Techno-Economic Optimization Toolkit for Hybrid Building Power Systems
Sponsor: Salt River Project (SRP)
Funding: $44,990
Start date: 2014
Duration: 1 yr
Role: PI
Performers: ASU

[68] Title: Residential Thermal Energy Control System with Storage
Sponsor: Salt River Project (SRP)
Funding: $20,000
Start date: 2014
Duration: 1 yr

Role: Co-PI
Performers: ASU

[69] Title: Concentrating Solar for Combined Heat and Power Applications
Sponsor: AORA
Funding: $1,550,000
Start date: 2014
Duration: 4 yr
Role: Co-PI
Performers: ASU

[70] Title: Collaborative Research: RIPS Type 2: Resilience Simulation for Water, Power, & Road Networks
Sponsor: U.S. National Science Foundation (NSF)
Funding: $1,949,788
Start date: 2014
Duration: 3 yr
Role: Co-PI
Performers: ASU, Purdue University

[71] Title: High Efficiency Solar Thermochemical Reactor for Hydrogen Production
Sponsor: U.S. Department of Energy (DOE)
Funding: $195,974
Start date: 2014
Duration: 2 yr
Role: Co-PI
Performers: ASU, Sandia National Laboratories

[72] Title: High Performance Reduction/Oxidation Metal Oxides for Thermochemical Energy Storage (PROMOTES)
Sponsor: U.S. Department of Energy (DOE)
Funding: $236,126
Start date: 2014
Duration: 3 yr
Role: Co-PI
Performers: ASU, Sandia National Laboratories

[73] Title: Distributed Energy Resource Integration and Interconnection
Sponsor: Verizon Foundation
Funding: $35,000
Start date: 2014
Duration: 1 yr
Role: Co-PI
Performers: ASU

[74] Title: BRIDGE in Sustainable Energy and Information and Communication Technologies
Sponsor: Inter-American Development Bank
Funding: $340,137
Start date: 2014
Duration: 2 yr
Role: Co-PI

Performers: ASU

[75] Title: Concept Paper and Proposal for Certification of Solar Technicians in Sub-Saharan Africa and Asia
Sponsor: International Renewable Energy Agency (IRENA)
Funding: $100,000
Start date: 2014
Duration: 1 yr
Role: Co-PI
Performers: ASU

[76] Title: Analysis of Performance Data for a Large Thermal Energy Storage System Installed at a Salt River Project Facility in Southern Arizona
Sponsor: Salt River Project (SRP)
Funding: $45,921
Start date: 2014
Duration: 1 yr
Role: Co-PI
Performers: ASU

External Technical Services

Summary of External Technical Services

Below is a summary of external services at ASU from 2013-present. This agreement type is used for training, consulting services, equipment testing for third-party, and ad-hoc technical assistance.

Total Count	PI Count	Total Value ($)*
31	20	$ 2,138,453

* ASU does not track the PI recognized value for external services.

External Services Agreements: 31

[1] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $25,000
Start date: 2026
Duration: 3 mo
Role: Co-PI
Performers: ASU

[2] Title: Microgrid and Battery Graduate Certificates Content Development
Sponsor: U.S. Naval Postgraduate School
Funding: $303,000 (sub-agreement to ASU via Leidos)
Start date: 2026
Duration: 1 yr
Role: PI
Performers: ASU

[3] Title: Site Demonstration Plan, System Commission and Testing of TES Unit
Sponsor: EarthEn Energy Inc.
Funding: $15,000
Start date: 2025
Duration: .5 yr
Role: PI
Performers: ASU

[4] Title: Microgrid Feasibility Assessment and Site Visits
Sponsor: Hui Ulu Mea Ai (HUMA)
Funding: $102,500
Start date: 2025
Duration: 1 yr
Role: PI
Performers: ASU

[5] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $65,000

Start date: 2025
Duration: 1 yr
Role: Co-PI
Performers: ASU

[6] Title: One Thousand Resilient Communities Training
Sponsor: Center for Strategic Policy Innovation
Funding: $17,473
Start date: 2024
Duration: 4 mo
Role: PI
Performers: ASU

[7] Title: Microgrid Feasibility Assessment for Ann Arbor, MI
Sponsor: Center for Strategic Policy Innovation
Funding: $15,000
Start date: 2024
Duration: 3 mo
Role: PI
Performers: ASU

[8] Title: Solar-Battery Systems Feasibility Assessment and Market Review
Sponsor: MAK Construction
Funding: $10,000
Start date: 2024
Duration: 3 mo
Role: PI
Performers: ASU

[9] Title: Community Energy Analysis and Needs Assessment
Sponsor: Hopi Utilities Corp.
Funding: $30,000
Start date: 2024
Duration: .5 yr
Role: PI
Performers: ASU

[10] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $125,000
Start date: 2024
Duration: 1 yr
Role: Co-PI
Performers: ASU

[11] Title: Madagascar Integrated Energy Plan
Sponsor: United Nations Sustainable Energy for All (SEforAll)
Funding: $46,863 (sub-agreement to ASU via NRECA International)
Start date: 2023
Duration: 1 yr
Role: PI

Performers: NRECA International, Ltd., ASU

[12] Title: Microgrid Boot Camp
Sponsor: University of Alaska Fairbanks Alaska Center for Energy and Power (ACEP)
Funding: $25,768
Start date: 2023
Duration: 1 mo
Role: PI
Performers: ASU

[13] Title: Microgrid Site Feasibility Assessments
Sponsor: National Rural Electric Cooperative Association (NRECA)
Funding: $9,000
Start date: 2023
Duration: 4 mo
Role: Co-PI
Performers: ASU

[14] Title: Microgrid Training Program
Sponsor: Xendee Corporation
Funding: $177,250
Start date: 2023
Duration: 1.5 yr
Role: PI
Performers: ASU

[15] Title: National Renewable Energy Laboratory (NREL) Training Tools
Sponsor: Center for Strategic Policy Innovation
Funding: $23,800
Start date: 2023
Duration: 0.5 yr
Role: PI
Performers: ASU

[16] Title: Microgrid Training for Military Energy Managers
Sponsor: Xendee Corporation
Funding: $65,840
Start date: 2023
Duration: 1 yr
Role: PI
Performers: ASU

[17] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $100,000
Start date: 2023
Duration: 1 yr
Role: Co-PI
Performers: ASU

[18] Title: Community Energy Training
Sponsor: Ho'ahu Energy Co-op
Funding: $90,428
Start date: 2022
Duration: 1 yr
Role: PI
Performers: ASU

[19] Title: Energy Accelerator and Workforce Development Program
Sponsor: Los Angeles Cleantech Incubator
Funding: $142,131
Start date: 2022
Duration: 1 yr
Role: PI
Performers: ASU

[20] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $100,000
Start date: 2022
Duration: 1 yr
Role: Co-PI
Performers: ASU

[21] Title: Mini-grid Design Support
Sponsor: SOLAD Power Group, Ltd.
Funding: $3,500
Start date: 2022
Duration: 1 mo
Role: PI

[22] Title: Solar Array Analysis and Training
Sponsor: City of Lansing, MI
Funding: $6,000
Start date: 2022
Duration: 2 mo
Role: PI
Performers: ASU

[23] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $100,000
Start date: 2021
Duration: 1 yr
Role: Co-PI
Performers: ASU

[24] Title: Opportunity Assessment for U.S. Market
Sponsor: TEXEL Energy Storage AB
Funding: $70,000
Start date: 2020

Duration: 0.5 yr
Role: PI
Performers: ASU

[25] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $100,000
Start date: 2020
Duration: 1 yr
Role: Co-PI
Performers: ASU

[26] Title: Microgrid Training for Military Energy Managers
Sponsor: Xendee Corporation
Funding: $62,900
Start date: 2020
Duration: 1 yr
Role: PI
Performers: ASU

[27] Title: Microgrid Boot Camp
Sponsor: Space and Naval Warfare Systems Command (SPAWAR)
Funding: $30,000
Start date: 2019
Duration: 1 mo
Role: PI
Performers: ASU

[28] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $100,000
Start date: 2019
Duration: 1 yr
Role: Co-PI
Performers: ASU

[29] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $42,000
Start date: 2018
Duration: 1 yr
Role: Co-PI
Performers: ASU

[30] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $45,000
Start date: 2017
Duration: 1 yr
Role: Co-PI
Performers: ASU

[31] Title: Consulting Support for Energy Technology, Economic, and Policy Analysis
Sponsor: County of Hawaii
Funding: $90,000
Start date: 2016
Duration: 1 yr
Role: Co-PI
Performers: ASU

Mentorship

Summary of Mentorship

Category	Count
Assistant Research Professor (Prior)	1
Research Staff (Current)	14
Research Staff (Prior)	11
Postdoctoral Researchers (Current)	2
Postdoctoral Researchers (Prior)	2
Ph.D. Students (Current)	5
Ph.D. Students (Graduated)	9
Ph.D. Students Committees (Current)	4
Ph.D. Students Committees (Graduated)	7
M.S. Thesis Students (Current)	0
M.S. Thesis Students (Graduated)	9
M.S. Thesis Students Committee (Current)	0
M.S. Thesis Students Committee (Graduated)	3
M.S. Project Students (Current)	3
M.S. Project Students (Graduated)	26
M.S. MORE* Students (Graduated)	1
M.S. Research Students (Current)	8
M.S. Research Students (Graduated)	4
Undergraduate FURI** Students Graduated	8
Undergraduate Barret Honors Thesis Students (Graduated)	5
Undergraduate Barret Honors Thesis Students (Current)	0
Undergraduate Research Students (Current)	1
Undergraduate Research Students (Graduated)	62
Visiting Scholars and Students (Prior)	10
Student Fellowships and Awards	37

* Master's Opportunities for Research in Engineering (MORE)
** Fulton Undergraduate Research Initiative (FURI)

Assistant Research Professor (Prior): 1

[1] Dr. Samantha Janko, Assistant Research Professor

Research Staff (Current): 14

[1] Abdulrahman 'Al' Alsanad, Geospatial Data Analyst
[2] Abigail Reeds, Program Manager Research and Development
[3] Alexander Mobley, Associate Director of Technology Evaluation and Workforce Development
[4] Brianna Fornes, Electrical Engineer
[5] Dylan Lanning, Community Development Specialist
[6] Elena van Hove, Director of Strategy and Partnerships
[7] Gary Morris, Software Engineer
[8] Dr. James Nelson, Director of Technology and Innovation

[9] Mackenzie Wodicker, Electrical Engineer
[10] Marlon Acevedo Rios, Electrical Engineer
[11] Dr. Mindy Kimball, Assistant Director of Research
[12] Ryan Sparks, Electrical Engineer
[13] Sarah Johnson, Program Manager
[14] Vera Von Esse, Program Manager

Research Staff (Prior): 11

[1] Batuul Tumurkhuyag, Assistant Research Technologist
[2] Cindy Lucio, Senior Program Coordinator
[3] Derek Hamel, Software Engineer
[4] Holly Hames, Management Intern
[5] Elizabeth Obiero, Electrical Engineer
[6] Joseph Sanchez, Associate Director of Research
[7] Kassy Buck, Project Coordinator Research
[8] Lisa Whelan, Program Manager Senior
[9] Nicole Bingham, Program Manager
[10] Sara Sroka, Management Intern
[11] Shaun Atkinson, Research Specialist

Postdoctoral Researchers (Current): 2

[1] Dr. Tam Kemabonta, Systems Engineering
[2] Dr. Brighton Ombuki, Systems Engineering

Postdoctoral Researchers (Prior): 2

[1] Dr. Briana Lucero, Systems Engineering
[2] Dr. Yasser Yasaei, Electrical Engineering

Ph.D. Students (Current): 5

[1] Alexander Kohnen, Sustainability
[2] Alexander Mobley, Engineering Education
[3] Ryan Sparks, Systems Engineering
[4] Vladimir Abdelnour, Systems Engineering
[5] Wubishet Degife Mammo, Systems Engineering

Ph.D. Students (Graduated): 9

[1] Arnel Garcesa, Systems Engineering
[2] Brandon Gorman, Sustainability Engineering
[3] Brighton Ombuki, Systems Engineering
[4] James Nelson, Systems Engineering
[5] Romney Kellogg, Systems Engineering

[6] Samantha Janko, Systems Engineering
[7] Tam Kemabonta, Sustainable Energy
[8] Shammya Saha, Electrical Engineering
[9] Vishnu Budama, Mechanical Engineering

Ph.D. Students Committees (Current): 4

[1] Naveed Ishraq, Systems Engineering
[2] Nehal Ansh Srivastava, Sustainability Engineering
[3] Nitish Jolly, Systems Engineering
[4] Writtik Dutta, Systems Engineering

Ph.D. Students Committees (Graduated): 7

[1] Abed Kazemtarghi, Systems Engineering.
[2] Daniel Burillo, Sustainability Engineering
[3] Emily Bondank, Sustainability Engineering
[4] Juan Pablo Avilés Arévalo, Engineering Science, Technológico de Monterrey
[5] Miguel Peinado-Guerrero, Systems Engineering
[6] Nikhil Ravi, Electrical Engineering
[7] Ryan Hoff, Sustainability Engineering

M.S. Thesis Students (Current): 0

M.S. Thesis Students (Graduated): 9

[1] Arjun Hati, Computer Engineering
[2] Dhiwaakar Purusothaman, Electrical Engineering
[3] Elena van Hove, Sustainability
[4] Evvan Morton, Sustainability Engineering
[5] James Nelson, Mechanical Engineering
[6] Malena Agyemang, Sustainability Engineering
[7] Mariana Lopes, Sustainability Engineering
[8] Michael Arnold, Engineering
[9] Uday Singh, Engineering

M.S. Thesis Students Committees (Current): 0

M.S. Thesis Students Committees (Graduated): 3

[1] Hongru Xu, Engineering.
[2] Nagasukrutha Sunku Srinivasa Murthy, Engineering.

[3] Yue Zhao, Engineering.

M.S. Project Students (Current): 3

[1] Kaley Hedrick, Sustainable Engineering
[2] Garikayi Nyakujara, Engineering
[3] Tendaishe Munetsiwa, Engineering

M.S. Project Students (Graduated): 26

[1] Aksa Elizabeth Sunny, Computer Science
[2] Armandine Joana A. Amessouwoe, Electrical Engineering
[3] Brent Kolste, Engineering
[4] Cody Van Cleve, Engineering
[5] David Bowersox, Engineering
[6] Derek Hamel, Software Engineering
[7] James Larson, Engineering
[8] John Abbott, Software Engineering
[9] Joseph Cardwell, Engineering
[10] Joseph Hernandez, Electrical Engineering
[11] Kashyap Chimatapu, Engineering
[12] Gary Morris, Software Engineering
[13] Mackenzie Wodicker, Electrical Engineering
[14] Matthew Lukas, Engineering
[15] Matthew Witkowski, Engineering
[16] Mukhtar Hazmat, Electrical Engineering
[17] Nathan Webster, Engineering
[18] Parv Dave, Software Engineering
[19] Romney Kellogg, Engineering
[20] Ryan Sparks, Engineering
[21] Samantha Janko, Engineering
[22] Sreehari Sasidharan, Electrical Engineering
[23] Srilatha Raghavan, Electrical Engineering
[24] Tonya Manning, Engineering
[25] Vishal Kanwar, Computer Science
[26] Vivek Kandel, Information Technology

M.S. MORE Students (Graduated): 1

[1] James Larson, Engineering

M.S. Research Students (Current): 8

[1] Andrew Headley, Engineering
[2] Ankil Vishwanath Khatode, Computer Science
[3] Anmol Raju Deshmukh, Computer Science

[4] Chadra Kishore Reddy Gurram, Computer Science
[5] Chimnay Janwalkar, Computer Science
[6] Garikayi Nyakujara, Engineering
[7] Kaley Hedrick, Sustainable Engineering
[8] Tendaishe Munetsiwa, Engineering

M.S. Research Students (Graduated): 4

[1] Daniel Carmody, Software Engineering
[2] Geeth Gottimukkala, Computer Science
[3] Jash Pramod Kahar, Computer Science
[4] Vaibhav Dubey, Computer Engineering

Undergraduate FURI Students (Graduated): 8

[1] James Larson, Engineering
[2] Kyle Koski, Engineering
[3] Kyle Reilly, Engineering
[4] Neil Flippin, Engineering
[5] Michael Birner, Engineering
[6] Michael Granato, Engineering
[7] Samantha Janko, Engineering
[8] Suzy Schadel, Environmental Engineering

Undergraduate Barrett Honors Thesis Students (Graduated): 5

[1] Amelie Clark, Civil Engineering
[2] David Hobgood, Electrical Engineering
[3] Kyle Reilly, Engineering
[4] Joseph Bauer, Engineering
[5] Sarah Sroka, Marketing and Finance

Undergraduate Barrett Honors Thesis Students (Current): 0

Undergraduate Research Students (Current): 1

[1] Jacob Andrus, Engineering

Undergraduate Research Students (Graduated): 62

[1] Aaron Lajom, Software Engineering
[2] Alexander Mobley, Engineering
[3] Andrew Crouch, Engineering
[4] Ari Faye, Graphic Information Technology

[5] Austin Cameron, Engineering
[6] Andrew Headley, Engineering
[7] Brendan Adair, Environmental and Resource Management
[8] Brent Kolste, Engineering
[9] David Hobgood, Electrical Engineering
[10] David Lampert, Electrical Engineering
[11] Dominick Blue, Mechanical Engineering
[12] Ed Barela, Engineering
[13] Eitan Gerson, Mechanical Engineering
[14] Erin Pryor, Electrical Engineering
[15] Evin Schmidt, Mechanical Engineering
[16] Hailey Gallatin, Engineering
[17] Harish Chaurasia, Computer Science
[18] Holly Hames, Sustainability & Anthropology
[19] Jake Burton, Graphic Information Technology
[20] Javier Benavides, Computer Science
[21] Jennifer Flores, Electrical Engineering
[22] John (Trey) Smith, Engineering
[23] John Stracco, Business & Spanish
[24] Johnathan Vandyke, Engineering
[25] Joe Aorahim, Software Engineering
[26] Jordan Quinones, Electrical Engineering
[27] Joseph Bauer, Engineering
[28] Joseph Coleman, Civil Engineering
[29] Joseph Pezzi, Engineering
[30] Justin Clark, Software Engineering
[31] Justin Williams, Electrical Engineering
[32] Kaysi Pilcher, Software Engineering
[33] Kevin Campos, Graphic Information Technology
[34] Kyle Garland, Business Data Analytics
[35] Kyle Koski, Engineering
[36] Kyle Reilly, Engineering
[37] Leon Wagner, Urban Planning
[38] Leyli Rustamli, Electrical Engineering
[39] Lyra Embree, Engineering
[40] Mackenzie Wodicker, Electrical Engineering
[41] Marcello Borromeo, Business Management & Data Analytics
[42] Makena Kjellsen, Finance
[43] Maria Espinoza, Engineering
[44] Michael Birner, Engineering
[45] Michael Granato, Engineering
[46] Michael Salvacruz, Applied Science Operations Management
[47] Naman Shukla, Computer Engineering and Electrical Engineering
[48] Natali Rodriguez, Human Systems Engineering
[49] Neil Flippin, Engineering
[50] Noelle van Hove, Art
[51] Ngoc Bao (Tisa) Tran, Business Data Analytics
[52] Nicholas Nelson, Engineering
[53] Rhiannon Salceda, Computer Science
[54] Romney Kellogg, Engineering
[55] Samantha Janko, Systems Engineering

[56] Santos Tobias, Electrical Engineering
[57] Sarah Sroka, Marketing and Finance
[58] Sean Scott, Software Engineering
[59] Shaun Atkinson, Engineering
[60] Suzy Schadel, Environmental Engineering
[61] Yasmine Muraweh, Computer Science & Business
[62] William Brubaker, Software Engineering

Visiting Scholars and Students (Prior): 10

[1] Dr. Andrea Alberto Mammoli, Professor, Mechanical Engineering, University of New Mexico
[2] Avia Linke, Electrical Engineer, Reiner Lemoine Institut
[3] Brighton Ombuki, Electrical Engineer, Engineering for Change Fellow
[4] Elizabeth Obiero, Electrical Engineer, Engineering for Change Fellow
[5] Eric Bidong, Electrical Engineer, Engineering for Change Fellow
[6] Dilraj Mann, Mechanical Engineering, Engineering for Change Fellow
[7] Juan Pablo Avilés Arévalo, Ph.D. Candidate in Engineering Science, Technológico de Monterrey
[8] Julian Fleischmann, Electrical Engineer, Reiner Lemoine Institut
[9] Mboundor Diouf, Ph.D. Candidate in Development Economics, University of Poitiers (CRIEF)
[10] Mufaro Kanganga, Supply Chain, Engineering for Change Fellow

Student Fellowships and Awards: 37

[1] Ari Faye, 1st Place in Digital Products, American Institute of Graphical Arts Polytechnic
[2] Ari Faye, 3rd Place in Digital Products, American Institute of Graphical Arts Polytechnic
[3] Ari Faye, 3rd Place in Print Design, American Institute of Graphical Arts Polytechnic
[4] Arnel Garcesa, Dean's Fellowship, ASU Ira A. Fulton Schools of Engineering
[5] Arnel Garcesa, Science for Development Institute Travel Scholarship
[6] Brandon Gorman, Dean's Fellowship, ASU Ira A. Fulton Schools of Engineering
[7] Brent Kolste, Department of Defense (DoD) Science, Mathematics And Research for Transformation (SMART) Scholarship
[8] Brighton Ombuki, NextGen Leadership Program, OpenMinds
[9] Cody Van Cleve, Dean's Fellowship, ASU Ira A. Fulton Schools of Engineering
[10] Cody Van Cleve, Outstanding Graduate, The Polytechnic School
[11] Elena van Hove, Rob Melnick Sustainability Scholarship
[12] Elena van Hove, Visiting Research Fellowship, Reiner Lemoine Institut
[13] James Nelson, Venture Devils
[14] Jordan Quinones, Board Member, ASU Eta Kappa Nu Honors Society
[15] Jordan Quinones, Board Member, ASU Student Veteran Association
[16] Jordan Quinones, 2023 Veterans of Foreign Wars and Student Veterans of America (VFW/SVA) Legislative Fellow
[17] Mackenzie Wodicker, IEEE Power & Energy Society Scholarship
[18] Mackenzie Wodicker, Blower's Engineering Scholarship
[19] Mukhtar Hamzat, Mastercard Foundation Scholars Program
[20] Mukhtar Hamzat, Global Challenges Scholars Program
[21] Mukhtar Hamzat, Venture Devils
[22] Nathan Webster, Engineering Graduate Fellowship
[23] Romney Kellogg, Dean's Fellowship, ASU Ira A. Fulton Schools of Engineering
[24] Romney Kellogg, Visiting Research Fellowship, Reiner Lemoine Institut

[25] Romney Kellogg, Science for Development Institute Travel Scholarship
[26] Samantha Janko, NSF Graduate Research Fellowship Program
[27] Samantha Janko, Outstanding Undergraduate, ASU The Polytechnic School
[28] Santos Tobias, Palais Prize for Senior Design Excellence, ASU Ira A. Fulton Schools of Engineering
[29] Suzy Schadel, WaterReuse Scholarship
[30] Tam Kemabonta, Visiting Research Fellowship, Reiner Lemoine Institut
[31] Tam Kemabonta, NextGen Leadership Program, OpenMinds
[32] Tam Kemabonta, Adam Smith Fellowship, George Mason University
[33] Tam Kemabonta, Service Award, ASU Graduate and Professional Student Association
[34] Tam Kemabonta, Clinton Fellow, Clinton Global Initiative University
[35] Tam Kemabonta, Peter DeSimone Student Scholarship
[36] Vladimir Abdelnour, Founding President, ASU Association of Energy Engineers
[37] Vladimir Abdelnour, Fulton Fellow, ASU Ira A. Fulton Schools of Engineering

Teaching

Summary of Courses Taught

Category	Count
Undergraduate Courses Taught	41
Undergraduate New Course Development	7
Undergraduate Existing Course Updated with New Content	2
Graduate Courses Taught	27
Graduate New Course Development	7
Graduate Existing Course Updated with New Content	2
Study Abroad Courses Taught (and developed)	2
Teaching Awards	2

Summary of Teaching Evaluations

Category	Value (out of 5)
Average Teaching Evaluation Score for Undergraduate Courses	4.73
Average Teaching Evaluation Score for Graduate Courses	4.77

Undergraduate Courses Taught: 41

[1] EGR 216: Electrical Fundamentals. 3 credits. Spring 2026.
[2] EGR 476: Microgrid Design and Operation. 3 credits. Fall 2025.
[3] EGR 476: Microgrid Design and Operation. 3 credits. Fall 2024.
[4] EGR 476: Microgrid Design and Operation. 3 credits. Spring 2024.
[5] EGR 216: Electrical Fundamentals. 3 credits. Fall 2023.
[6] EGR 216: Electrical Fundamentals. 3 credits. Fall 2022.
[7] EGR 476: Microgrid Design and Operation. 3 credits. Spring 2022.
[8] EGR 494: Micro-grid Planning & Testing. 1 credit. Spring 2021.
[9] EGR 476: Microgrid Design and Operation. 3 credits. Spring 2021.
[10] EGR 216: Electrical Fundamentals. 3 credits. Fall 2020.
[11] EGR 476: Microgrid Design and Operation. 3 credits. Spring 2020.
[12] EGR 494: Micro-grid Planning & Testing. 1 credit. Spring 2020.
[13] EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Spring 2020.
[14] EGR 216: Electrical Fundamentals. 3 credits. Fall 2019.
[15] EGR 475: Alternative Energy. 3 credits. Fall 2019.
[16] EGR 476: Microgrid Design and Operation. 3 credits. Spring 2019.
[17] EGR 494: Micro-grid Planning & Testing. 1 credit. Spring 2019.
[18] EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Spring 2019.
[19] EGR 216: Electrical Fundamentals. 3 credits. Fall 2018.
[20] EGR 475: Alternative Energy. 3 credits. Fall 2018.
[21] * EGR 476: Microgrid Design and Operation. 3 credits. Spring 2018.
[22] EGR 494: Micro-grid Planning & Testing. 1 credit. Spring 2018.
[23] ASU 101: The ASU Experience. 1 credit. Fall 2017.
[24] EGR 475: Alternative Energy. 3 credits. Fall 2017.

[25] EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Summer 2017.
[26] * EGR 494 (online): Microgrid Control. 3 credits. Summer 2017.
[27] * EGR 476: Energy Infrastructures. 3 credits. Spring 2017.
[28] EGR 494 & EGR 494 (online): Micro-grid Planning & Testing. 1 credit. Spring 2017.
[29] EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Spring 2017.
[30] EGR 494 & EGR 494 (online): Micro-grid Planning & Testing. 1 credit. Fall 2016.
[31] * EGR 494: Alternative Energy. 3 credits. Fall 2016.
[32] EGR 494 & EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Fall 2016.
[33] * ALT 412: Village Energy Systems. 3 credits. Spring 2016.
[34] EGR 202: Use-Inspired Design Project II. 3 credits. Spring 2016.
[35] * EGR 494 (online): Electric Grid Simulation and Operation. 3 credits. Spring 2016.
*[36] * EGR 494 & EGR 494 (online): Micro-grid Planning & Testing. 1 credit. Spring 2016.*
[37] MET 435: Alternative Energy Sources. 3 credits. Fall 2015.
[38] EGR 202: Use-Inspired Design Project II. 3 credits. Spring 2015.
[39] MET 435: Alternative Energy Sources. 3 credits. Fall 2014.
[40] ** EGR 202: Use-Inspired Design Project II. 3 credits. Spring 2014.
[41] ** MET 435: Alternative Energy Sources. 3 credits. Fall 2013.

Notes:
* denotes new course development
** denotes existing courses that were heavily updated or redone
Courses in italics list two identifiers such as "EGR 494 & EGR 494 (online)" were taught as the same session and hence count as one course

Graduate Courses Taught: 27

[1] EGR 586: Microgrid Design and Operation. 3 credits. Fall 2025.
[2] EGR 598: Microgrid Design and Operation. 3 credits. Fall 2024.
[3] EGR 598: Microgrid Design and Operation. 3 credits. Spring 2024.
[4] EGR 598: Alternative Energy. 3 credits. Spring 2022.
[5] EGR 598: Grid Modernization I. 3 credits. Spring 2022.
[6] EGR 598: Microgrid Design and Operation. 3 credits. Spring 2021.
[7] EGR 598: Alternative Energy. 3 credits. Fall 2020.
[8] EGR 598: Grid Modernization I. 3 credits. Spring 2020.
[9] EGR 598: Microgrid Design and Operation. 3 credits. Spring 2020.
[10] EGR 598: Micro-grid Planning & Testing. 1 credit. Spring 2020.
[11] EGR 598: Alternative Energy. 3 credits. Fall 2019.
[12] EGR 598: Grid Modernization I. 3 credits. Spring 2019.
[13] EGR 598: Microgrid Design and Operation. 3 credits. Spring 2019.
[14] EGR 598 & EGR 598 (online): Electric Grid Simulation and Operation. 3 credits. Fall 2019.
[15] EGR 598: Alternative Energy. 3 credits. Fall 2018.
[16] * EGR 598: Grid Modernization I. 3 credits. Spring 2018.
[17] * EGR 598: Microgrid Design and Operation. 3 credits. Spring 2018.
[18] EGR 598: Alternative Energy. 3 credits. Fall 2017.
[19] * EGR 598 (online): Microgrid Control. 3 credits. Summer 2017.
[20] * EGR 598: Energy Infrastructures. 3 credits. Spring 2017.
[21] * EGR 598: Alternative Energy. 3 credits. Fall 2016.
*[22] * EGR 598 & EGR 598 (online): Electric Grid Simulation and Operation. 3 credits. Fall 2016.*
[23] ** ALT 512: Village Energy Systems. 3 credits. Spring 2016.
[24] ALT 598: Alternative Energy Systems Research. 3 credits. Fall 2015.
[25] ALT 598: Alternative Energy Systems Research. 3 credits. Fall 2014.

[26] ** EGR 520: Engineering Systems Design & Analysis. 3 credits. Fall 2014.
[27] * ALT 598: Alternative Energy Systems Research. 3 credits. Fall 2013.

Notes:
* denotes new course development
** denotes existing courses that were heavily updated or redone
Courses in italics list two identifiers such as "EGR 598 & EGR 598 (online)" were taught as the same session and hence count as one course

Study Abroad Courses Taught: 2

[1] *EGR 494 & EGR 494 (online): Sustainable Energy Solutions for Islands (Aruba). 3 credits. Summer 2015*.
[2] *EGR 598 & EGR 598 (online): Sustainable Energy Solutions for Islands (Aruba). 3 credits. Summer 2015*.

Notes: *italics denotes new course development,* courses listing two identifiers such as "EGR 598 & EGR 598 (online)" were taught as the same session and hence count as one course

Teaching Awards: 2

[1] Top 5% Teaching Award. Ira A. Fulton Schools of Engineering, Arizona State University. 2019.
[2] Top 5% Teaching Award. Ira A. Fulton Schools of Engineering, Arizona State University. 2021.

Professional Activities and Service

Summary of Professional Activities and Service

Category	Count
Journal Editor	1
Journal Reviewer	12
International/National Conference Chair	3
International/National Conference Committee	2
International/National Conference Session Organizer/Chair	14
Professional Communities and Working Groups	10
Proposal Reviewer for Funding Agencies	7
ASU – University Service	6
ASU – Engineering Service	4
ASU – The Polytechnic School (Unit) Service	5
ASU – Affiliations	9
ASU – Faculty Search Committee Chair	1
ASU – External Partnerships Established	10
National Service	3
Community Service	2
Industry Service	8

Journal Editor: 1

[1] Guest Editor. Special issue on "Microgrids and Renewable Energy Integration". *Energies*.

Journal Reviewer: 12

[1] Energy Strategy Reviews
[2] Frontiers in Energy Efficiency
[3] Frontiers in Energy Research
[4] Journal of Applied Thermal Engineering
[5] Journal of Biomass and Bioenergy
[6] Journal of Development Engineering
[7] Journal of Ecological Economics
[8] Journal of Energy for Sustainable Development
[9] Journal of Mechanical Design
[10] Journal of Renewable and Sustainable Energy
[11] International Journal of Hydrogen Energy
[12] PLOS ONE

International/National Conference Chair: 3

[1] Program Chair, 2024 Accelerating Off-grid Electrification in Pacific Island Countries. Suva, Fiji

[2] Conference Chair, 2023 Accelerating Clean Energy Transitions and Resilience in Pacific Island Countries. Suva, Fiji
[3] Program Chair, 2015 IEEE Global Humanitarian Technology Conference (GHTC). Seattle, Washington

International/National Conference Committees: 2

[1] 2014 IEEE Global Humanitarian Technology Conference (GHTC). Seattle, Washington
[2] 2013 IEEE Global Humanitarian Technology Conference (GHTC). San Jose, California

International/National Conference Session Organizer/Chair: 14

[1] Design and Optimization of Sustainable Energy Systems, 2019 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[2] Engineering for Global Development, 2019 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[3] Design and Optimization of Sustainable Energy Systems, 2018 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[4] Engineering for Global Development, 2018 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[5] Design and Optimization of Sustainable Energy Systems, 2017 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[6] Engineering for Global Development, 2017 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[7] Design and Optimization of Sustainable Energy Systems, 2016 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[8] Engineering for Global Development, 2016 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[9] Engineering for Global Development, 2015 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[10] Thermal Energy Storage, 2015 ASME International Conference on Energy Sustainability
[11] Energy, 2015 IEEE Global Humanitarian Technology Conference (GHTC)
[12] Energy, 2014 IEEE Global Humanitarian Technology Conference (GHTC)
[13] Engineering for Global Development, 2014 ASME International Design Engineering and Technical Conferences (IDETC) and Computers and Information in Engineering (CIE) Conference.
[14] Energy, 2013 IEEE Global Humanitarian Technology Conference (GHTC)

Professional Communities and Working Groups: 10

[1] Member, Department of Energy (DOE) Advanced Transformer Roadmap Working Group
[2] Member, Technical Advisory Group, U.S. Department of Defense Environmental Security Technology Certification Program (ESTCP)
[3] Chair, American Society of Mechanical Engineering (ASME) Engineering Global Development Research Committee
[4] Member, American Society of Mechanical Engineering (ASME) Volunteer Orientation Leadership Training (VOLT) Academy
[5] Member, Smart Village Initiate, Institute of Electrical and Electronics Engineers (IEEE) Power and Energy Society
[6] Test Developer, Tests of Engineering, Aptitude Mathematics and Science (TEAMS) competition
[7] Member, U.S. Technical Advisory Group to ISO/TC 285: Clean cookstoves and clean cooking solutions. Field Testing Methods Working Group
[8] Member, Mini-Grid Training Group, World Bank
[9] Member, Institute of Electrical and Electronics Engineers (IEEE) Sustainable Energy Systems for Developing Communities (SESDC) Working Group
[10] Fellow, Peer Leadership Academy, Arizona State University

Proposal Reviewer for Funding Agencies: 7

[1] American Association for the Advancement of Science (AAAS)
[2] Department of Energy: Flexible and Innovative Transformer Technologies (FITT)
[3] Global Alliance for Clean Cookstoves
[4] National Science Foundation: Cyber-Innovation for Sustainability Science and Engineering (CyberSEES)
[5] National Science Foundation: Environmental Sustainability
[6] National Science Foundation: Partnerships for International Research and Education (PIRE)
[7] Saudi Arabian Ministry of Education's Research Development Office

ASU – University Service: 6

[1] Center Director, ASU-Starbucks Center for the Future of People and the Planet
[2] Assistant Director of Research, Global Futures Laboratory
[3] Limited Submissions, Knowledge Enterprise Development
[4] Energy Innovations Advisor, Facilities Management
[5] Faculty Advisor, Association of Energy Engineers
[6] Advisor, University Sustainability Practices

ASU – Engineering Service: 4

[1] Dean's Faculty Advisory Council (Promotion and Tenure Committee)
[2] Polytechnic Campus Lead, SRP-ASU Joint Research Partnership
[3] Curriculum Committee, Ira A. Fulton Schools of Engineering
[4] Reviewer, Master's Opportunity for Research in Engineering (MORE)

ASU – The Polytechnic School Service: 5

[1] Faculty Honors Advisor

[2] Ad-hoc Reviewer, Promotion and Tenure Committee
[3] TPS Research and Innovation Affinity Group for research excellence
[4] iProject review committee
[5] Fundamentals of Engineering (FE) exam review session leader

ASU – Affiliations: 9

[1] Graduate Faculty, School of Electrical, Computer and Energy Engineering
[2] Graduate Faculty, School for Engineering of Matter, Transport and Energy
[3] Graduate Faculty, The Polytechnic School
[4] Graduate Faculty, School of Sustainable Engineering and the Built Environment
[5] Graduate Faculty, School of School of Manufacturing Systems and Networks
[6] Graduate Faculty, School of Sustainability
[7] Senior Sustainability Scientist, Global Institute of Sustainability
[8] School for Future of Innovation in Society
[9] International Development Initiative

ASU – Faculty Search Committee Chair: 1

[1] Energy Systems (crosscutting), The Polytechnic School, 2018

ASU – External Partnerships Established: 10

[1] Abt Associates, Teaming Agreement
[2] Center for Strategic Policy Innovation, Master Services Agreement
[3] Global Green Growth Institute, Memorandum of Understanding
[4] Indo-Pacific Command (INDOPACOM), Memorandum of Understanding
[5] Marine Corps Installation Command, Memorandum of Understanding
[6] Reiner Lemoine Institut (Germany), Collaboration Agreement
[7] Starbucks Corporation, Collaboration Agreement
[8] United States Energy Association, Collaboration Agreement
[9] University of the South Pacific, Memorandum of Understanding
[10] Xendee Corporation, Master Services Agreement

National Service: 3

[1] Technical Advisor, Defense Civilian Auxiliary Corps, National Security Innovation Network
[2] Technical Advisor, Arizona Army National Guard
[3] Technical Advisor, Marine Corps Installation Command

Community Service: 2

[1] Board of Directors, Growing Alternatives In Action
[2] Community Meals, Salvation Army

Industry Service: 8

[1] Board Member, United States Energy Association
[2] Board Member, MK Advisors
[3] Senior Advisor, XENDEE | Bankable Energy
[4] Senior Advisor, Ageto Corporation
[5] Senior Advisor, FactorE Corporation
[6] Energy Lead, Clean Growth Incubator
[7] External Technical Advisor, Arizona Public Service
[8] External Technical Advisor, Salt River Project