

Aditya Keskar, PhD

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EDUCATION

North Carolina State University <i>Ph.D., Civil, Construction, and Environmental Engineering</i>	Raleigh, NC Aug. 2018 – May. 2023
Thesis: “Enhancing grid flexibility by efficiently using distributed energy resources on the power system in the United States and India”	
Advisor: Jeremiah X. Johnson	
University of Michigan <i>MS Electrical and Computer Engineering</i>	Ann Arbor, MI Aug. 2016 – May 2018
PES University <i>BE Electrical and Electronics Engineering</i>	Bangalore, India Aug. 2012 – May 2016

POSITIONS

Public Utilities Engineer III <i>North Carolina Utilities Commission</i>	Raleigh, NC May 2023
Adjunct Lecturer <i>University of North Carolina at Chapel Hill</i>	Chapel Hill, NC Aug 2023
North Carolina STEM Policy Fellow <i>North Carolina State Energy Office</i>	Raleigh, NC Aug 2022 – May 2023
Graduate Research Assistant <i>North Carolina State University</i>	Raleigh, NC Aug 2018 – July 2022
Macro-Energy Systems Fellow <i>Stanford and Princeton University</i>	Raleigh, NC Oct 2021 – Present
Michigan Power and Energy Laboratory: Rackham Graduate Fellow <i>University of Michigan</i>	Ann Arbor, MI Feb 2017 – Jul 2018

AWARDS AND HONORS

Selected one of five North Carolina STEM Policy Fellow to serve at North Carolina State State Energy Office

Second prize at 2022 NC State CCEE Environmental, Water Resources, and Coastal Engineering Symposium

Invited panel moderator for panel on “*Innovations for Commercial and Industrial Buildings*” at 2024 State Energy Conference of North Carolina

Invited panelist at Best Practices in U.S. – India Higher Education Collaborations Workshop, IIE, 2021: “New Pathways for U.S. – India Partnerships”

Invited panelist at IEEE PES General Meeting, 2021: “The Interplay Between Energy Efficiency and Demand Response for Smart Buildings: Implications for Power Systems”

Macro Energy Systems Fellow 2021-2022 (\$1.5k awarded)

Co-author of Partnership-2020 grant proposal (with *PI-J.X Johnson*) for *Effective utilization of solar water pumps in rural Chhattisgarh* administered by Center for Strategic and International Studies, U.S State Department, and University of Nebraska Omaha (\$73k awarded)

Lead author on proposals for Sustainability Fund Awards given to Student Energy Club in 2018 and 2019 (\$27k awarded)

Finalist at 2020 NC State CCEE Environmental, Water Resources, and Coastal Engineering Symposium

ACEEE conference paper selected for special journal issue of *Springer Energy Efficiency: Best papers from ACEEE Summer Study 2018*

2018 NC State College of Engineering: Graduate Merit Award (\$3k awarded)

2018 ACEEE Linda Latham Scholarship

2017 University of Michigan Rackham Summer Award

PEER-REVIEWED JOURNAL PUBLICATIONS

- A. Keskar**, V. Soni, J. Shukla, S. Jain, S. Ghosh, R. N. Patel, and J. X. Johnson. “Tapping the unused energy potential of solar water pumps in India.” *Environmental Science and Technology Special Issue: Accelerating Environmental Research to Achieve Sustainable Development Goals*. (2023) 57: 14173-14181, DOI: <https://doi.org/10.1021/acs.est.3c02378>
- S. Jain, S. V. S. Phani, **A. Keskar**, J. X. Johnson, S. Ghosh and R. N. Patel, “High-Performance Hybrid MPPT Algorithm based Single-Stage Solar PV fed Induction Motor Drive for Standalone Pump Application” *IEEE Transactions on Industry Applications* (2023), pp. 1-13, doi: <https://doi.org/10.1109/TIA.2023.3310490>.
- A. Keskar**, C. Galik, and J.X. Johnson. “Planning for winter peaking power systems in the United States.” *Energy Policy* (2023) 173: 11337, DOI: <https://doi.org/10.1016/j.enpol.2022.113376>
- A. Keskar**, C. Galik, and J.X. Johnson. “Planning for winter peaking power systems in the United States.” *Energy Policy* (2023) 173: 11337, DOI: <https://doi.org/10.1016/j.enpol.2022.113376>
- A.J. Lin, S. Lei, **A. Keskar**, I. Hiskens, J.X. Johnson, and J.L. Mathieu, “The Sub-metered HVAC Implemented For Demand Response (SHIFDR) Dataset”. *Revised and Rubmitted to ASME*.
- J. de Chalendar, **A. Keskar**, J.X. Johnson, and J.L. Mathieu, “Living laboratories can and should play a greater role to unlock flexibility in US commercial buildings”. *Revised and Resubmitted to Joule*.
- A. Keskar**, S. Lei, T. Webb, S. Nagy, H. Lee, I.A. Hiskens, J.L. Mathieu, and J.X. Johnson. “Assessing the performance of global thermostat adjustment in commercial buildings for load shifting demand response.” *Environmental Research: Infrastructure and Sustainability* 2(1), 015003 (2022)
- A. Keskar**, D. Anderson, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. “Do commercial buildings become less efficient when they provide grid ancillary services?” In: *Energy Efficiency* 13.3 (2019), pp. 487–501.

CONFERENCE PROCEEDINGS AND REPORTS

- S. Jain, S. V. S. Phani, **A. Keskar**, J. X. Johnson, S. Ghosh and R. N. Patel, “A Hybrid MPPT Algorithm for Solar PV Water Pumping Systems.” *2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy and Control (STPEC)* (2021), pp. 1-6, doi: [10.1109/STPEC52385.2021.9718685](https://doi.org/10.1109/STPEC52385.2021.9718685).
- A. Keskar**, S. Lei, T. Webb, S. Nagy, H. Lee, I.A. Hiskens, J.L. Mathieu, and J.X. Johnson. “Stay cool and be flexible: energy-efficient grid services using commercial buildings HVAC systems.” In: *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*. (2020).
- A. Keskar**, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. “Estimate of the Capacity of University of Michigan Buildings to Balance Wind and Solar Power Variability.” *Report for University of Michigan Energy Institute*. Feb. 2019
- A. Keskar**, D. Anderson, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. “Experimental investigation of the additional energy consumed by building HVAC systems providing grid ancillary services”. In: *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*. Pacific Grove, CA, Aug. 2018

THESES

- PhD Thesis (Submitted Feb. 2023): “Enhancing grid flexibility by efficiently using distributed energy resources on the power system in the United States and India”. *NC State University*. Preliminary oral exam successfully completed in Dec. 2019. Committee: J.X. Johnson (chair), J.L. Mathieu, J. Kern, C. Galik, and A. Greishop
- MS Thesis (Submitted Jun. 2018): “Quantifying the energy efficiencies of buildings providing ancillary services”. *University of Michigan* Committee: J.L. Mathieu (chair), J.X. Johnson, and I.A. Hiskens

FUNDING

- Ensuring Optimal Utilization of Solar Water Pumps in Rural Chhattisgarh \$73k
Proposal co-author with PI J.X. Johnson. Team members: S. Jain, R.N. Patel, and S. Ghosh

INVITED TALKS AND PRESENTATIONS

- Invited panelist at Best Practices in U.S. – India Higher Education Collaborations Workshop, IIE, 2021: “New Pathways for U.S. – India Partnerships”
- Invited panelist at IEEE PES General Meeting, 2021: “The Interplay Between Energy Efficiency and Demand Response for Smart Buildings: Implications for Power Systems”

ORAL PRESENTATIONS AND POSTERS

Bold denotes presenter

- A. Keskar**. “Planning for winter peaking power systems in the United States.” *Doctoral Student Participatory Workshop on Climate and Energy Decision Making at Carnegie Mellon University*. May 2023.
- A. Keskar** and J.X. Johnson. “Investigating Impacts and Identifying Opportunities of Wide-scale Deployment of Solar Photovoltaic Water Pumps in India.” *American Geophysical Union (AGU) Fall Meeting*. Dec 2021.
- A. Keskar and L. Ford**. “Electricity 101: The U.S. Grid Explained” *NC State Energy Week*. Recorded webinar **link**, Sept 2021.
- A. Keskar, D. Anderson, **J.X. Johnson**, I.A. Hiskens, and J.L. Mathieu. Talk- “Buildings as batteries: An experimental investigation into energy efficiency impacts of demand response.” *International Symposium on Sustainable Systems and Technology*, Portland, OR. June 2019.
- A. Keskar**, D. Anderson, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. Poster- “Buildings as batteries: An experimental investigation into energy efficiency impacts of demand response.” *NC State Graduate Student Research Symposium (nominated)*, NC. Mar. 2019.
- A. Keskar**, D. Anderson, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. Talk- “Buildings as batteries: An experimental investigation into energy efficiency impacts of demand response.” *International Symposium on Sustainable Systems and Technology*, Portland, OR. June 2019.
- A. Keskar**, D. Anderson, J.X. Johnson, I.A. Hiskens, and J.L. Mathieu. “Experimental investigation of the additional energy consumed by building HVAC systems providing grid ancillary services”. In: *ACEEE Summer Study on Energy Efficiency in Buildings*. Pacific Grove, CA, Aug. 2018

SERVICE

Mentorship

Undergraduate Student Research: mentor of NC State CCEE Undergraduate Student Sarah Nagy for Department of Energy project, I-DREEM: Investigating short-term and long-term impacts of Demand Response on Energy Efficiency Measures, 2018-2021

Undergraduate Student Research: mentor of University of Michigan ECE Undergraduate Student Jordan Dongmo Nzangue, 2018-2019

Reviewing

Energy for Sustainable Development, 2022-present

International Transactions on Electrical Energy Systems, 2021-present

AGU Earth’s Future, 2022-present

Proceedings of the American Control Conference (ACC), 2022

Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings, 2020

IEEE Transactions on Smart Grid, 2023-present

Membership

IEEE Power and Energy Society (PES) Member 2017-2021

Sigma Xi, The Scientific Research Honor Society 2022-present

North Carolina Sustainable Energy Association 2022-present

Discipline

Co-founder of Student Energy Club, 2019-present

NC State Energy Week organizing committee, 2020-2022

NC State Energy Seminar series, 2019-2022

Macro-Energy Systems workshop organizing committee, 2021-2022

Macro-Energy Systems Seminar series, 2021-present

Hyperlinks embedded in bold

NC STEM Policy Fellows Begin Duties at Statewide Agencies by NC Sea Grant

CCEE graduate student selected as **NC STEM Policy Fellow** by NC Sea Grant

Op-ed: A holistic Ph.D. experience at CCEE — tips for early-stage Ph.D. students

Discover Energy at NC State- featured in video by *NC State Energy Collaborative*. 2020.

NC State Sustainability Office to host upcoming Energy Week- interviewed by *NC State Technician*.2020.

Student Club Energized To Connect- interviewed by *NC State Office of Sustainability*. 2020.

Energy Storage Team and Student Energy Club Receive Campus Awards- interviewed by *NC State Energy Collaborative*. 2019.

Student Energy Club offers mentorships, impacts campus policies- interviewed by *NC State Technician*. 2019.

What: A Deep Dive into a Bi-national Project- article co-written with J.X Johnson *Partnership 2020 Quarterly Newsletter, Center for Strategic and International Studies* 2020.