

Constance Crozier

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Education

- D.Phil University of Oxford**, Engineering Science Oct 2016 – July 2020
- Thesis: [Impact of Domestic Electric Vehicles on Electricity Networks](#) 🔗
 - Advisor: Malcolm McCulloch
- M.Eng University of Oxford**, Engineering Science Oct 2012 – July 2016
- Thesis: Bayesian Non-Parametrics for the War in Afghanistan
 - Advisor: Michael Osborne

Experience

- Georgia Institute of Technology**, H. Milton School of Industrial & Systems Engineering Atlanta, GA
Assistant Professor Aug 2023 – present
- University of Colorado Boulder**, Civil, Environmental, and Architectural Engineering Boulder, CO
Postdoctoral Associate (Advisor: Kyri Baker) Sep 2020 – July 2023
- UK Department for Business, Energy & Industrial Strategy** London, UK
Technical Energy Advisor Oct 2019 – Aug 2020

Select Awards & Prizes

- Energy and Climate-Tech Innovation Policy “Boot Camp” for Early Career Researchers, 2024.
- Prize Winner, ARPA-E Grid Optimization Competition Challenge 3, 2023.
- Rising Star in Electrical Engineering and Computer Science, 2022.
- Prize Winner, ARPA-E Grid Optimization Competition Challenge 2, 2021.
- Outstanding Postdoc Award, CU Boulder 2021

Publications

Total citations: 1,073+ h-index: 16 See [Google Scholar](#) 🔗 for full list. **Bold** font denotes supervised students

Published peer reviewed journal articles

- [J18] **Priyadarshan**, C. Crozier, K. Baker, K. Kircher, Distribution grids may be a barrier to residential electrification, *Cell Reviews Sustainability*, 2025.
- [J17] H. Sharadga, J. Mohammadi, C. Crozier, K. Baker, Scalable solutions for security-constrained optimal power flow with multiple time steps, *IEEE Transactions on Industry Applications*, 2025.
- [J16] M. Neaimeh, C. Crozier, M. Deakin, Learning by charging: Understanding consumers’ changing attitudes towards vehicle-to-grid, *Applied Energy*, 2025.
- [J15] M. Mohammadian, C. Crozier, K. Baker, Spatial arbitrage through bidirectional electric vehicle charging with delivery fleets, *Applied Energy*, 2024.
- [J14] C. Crozier, A. Pigott, K. Baker, Price perturbations for privacy preserving demand response with distribution network awareness, *IEEE Transactions on Smart Grid*, 2024.
- [J13] C. Crozier, K. Baker, The effect of renewable electricity generation on the value of cross-border interconnection, *Applied Energy*, 2022.
- [J12] A. Pigott, C. Crozier, K. Baker, Z. Nagy, GridLearn: multiagent reinforcement learning for grid-aware building energy management, *Electric Power Systems Research*, 2022.

- [J11] C. Crozier, K. Baker, B. Toomey, Feasible region-based heuristics for optimal transmission switching, *Sustainable Energy, Grids and Networks*, 2022.
- [J10] C. Crozier, C. Quarton, N. Mansor, D. Pagnano, I. Llewellyn, Modeling of the ability of a mixed renewable generation electricity system with storage to meet consumer demand, *Electricity*, 2022.
- [J9] K. Collett, S. Hirmer, H. Dalkmann, C. Crozier, Y. Mulugetta, M. McCulloch, Can electric vehicles be good for Sub-Saharan Africa?, *Energy Strategy Review*, 2021.
- [J8] C. Crozier, T. Morstyn, M. McCulloch, Capturing diversity in electric vehicle charging behaviour for network capacity estimation, *Transportation Research Part D: Transport and Environment*, 2021.
- [J7] C. Crozier, T. Morstyn, M. McCulloch, The opportunity for smart charging to mitigate the impact of EVs on the GB transmission and distribution systems, *Applied Energy*, 2020.
- [J6] C. Crozier, M. Deakin, T. Morstyn, M. McCulloch, Co-ordinated electric vehicle charging to reduce losses without network impedance information, *IET Smart Grid*, 2020.
- [J5] T. Morstyn, C. Crozier, M. Deakin, M. McCulloch, Electric vehicle smart charging with battery voltage awareness using second-order cone programming, *IEEE Transactions on Transport Electrification*, 2020.
- [J4] C. Crozier, M. Deakin, T. Morstyn, M. McCulloch, The case for bi-directional charging of electric vehicles in low voltage distribution networks, *Applied Energy*, 2020.
- [J3] K. Collett, M. Byamukama, C. Crozier, M. McCulloch, Energy and transport in Africa and South Asia, *Energy and Economic Growth*, 2020.
- [J2] C. Crozier, D. Apostolopoulou, M. McCulloch, Mitigating the impact of personal vehicle electrification: A power generation perspective, *Energy Policy*, 2018.
- [J1] J. Cao, C. Crozier, M. McCulloch, Optimal design and operation of a low carbon community based multi-energy systems considering EV integration, *IEEE Transactions on Sustainable Energy*, 2018.

Submitted pre-print journal articles

- [S2] C. Crozier, Modeling to generate alternatives for robustness of mixed integer DC optimal power flow, Uploaded: September 2025.
- [S1] **R. Davila**, C. Crozier, M. O'Malley, On the potential of electrified supply chains to provide long duration demand flexibility, Uploaded: May 2025.

Peer reviewed conference proceedings

- [C18] **Y. Ji, R. Davila**, Battery swapping stations for long haul freight charging considering an electrified supply chain, *IEEE North American Power Systems Conference*, 2025.
- [C17] **X. An**, C. Crozier, S. Dey, S. Grijalva, Bound tightening on McCormick relaxations of ACOPF, *IEEE North American Power Systems Conference*, 2025.
- [C16] **C. Ju**, C. Crozier, Learning a local trading strategy: Deep reinforcement learning for grid-scale renewable energy integration, *Hawaii International Conference on System Sciences*, 2025.
- [C15] **R. Davila**, C. Crozier, Scheduling electrified freight transportation to increase renewable generation utilization, *IEEE North American Power Systems Conference*, 2024.
- [C14] H. Sharadga, J. Mohammadi, C. Crozier, K. Baker, Optimizing multi-timestep security-constrained optimal power flow for large power grids, *IEEE Texas and Power Engineering Conference*, 2024.
- [C13] Priyadarshan, E. Pergantis, C. Crozier, K. Baker, K. Kircher, EDGIE: A simulation test-bed for investigating the impacts of building and vehicle electrification on distribution grids, *Hawaii International Conference on System Sciences*, 2024.
- [C12] S. Curtis, J. Montagu, C. Crozier, C. Torres-Machi, K. Baker, Trends in equitable electric vehicle adoption and impacts on pavement quality and electric power reliability, *ASCE*, 2024.

- [C11] C. Winner, J. Garland, C. Crozier, K. Baker, Carbon emissions resulting from different power flow models for dispatch, *IEEE PES General Meeting*, 2023.
- [C10] C. Crozier, K. Baker, Data-driven probabilistic constraint elimination for accelerated optimal power flow, *IEEE PES General Meeting*, 2022.
- [C9] C. Crozier, A. Pigott, K. Baker, Spatial arbitrage through bidirectional electric vehicle charging, *IEEE PES General Meeting*, 2022.
- [C8] M. Li, Y. Du, J. Mohammadi, C. Crozier, K. Baker, Numerical comparisons of linear power flow approximations: optimality, feasibility, and computation time, *IEEE PES General Meeting*, 2022.
- [C7] C. Crozier, K. Baker, Y. Du, M. Li, J. Mohammadi, Data driven methods for contingency filtering in security constrained optimal power flow, *International Conference on Probabilistic Methods Applied to Power Systems*, 2022.
- [C6] C. Crozier, K. Baker, Optimal sizing of an energy storage portfolio considering multiple time-scales, *IEEE PES General Meeting*, 2021.
- [C5] M. Deakin, C. Crozier, T. Morstyn, D. Apostolopoulou, M. McCulloch, Stochastic hosting capacity in distribution networks, *IEEE PES General Meeting*, 2019.
- [C4] C. Crozier, M. Deakin, T. Morstyn, M. McCulloch, Incorporating charger efficiency into electric vehicle charging optimization, *Innovation in Smart Grid Technologies (ISGT) Europe*, 2019.
- [C3] L. Han, T. Morstyn, C. Crozier, M. McCulloch, Improving the scalability of a prosumer cooperative game with k-means clustering, *IEEE PowerTech*, 2019.
- [C2] C. Crozier, D. Apostolopoulou, M. McCulloch, Clustering of usage profiles for electric vehicle behaviour analysis, *Innovation in Smart Grid Technologies (ISGT) Europe*, 2018.
- [C1] C. Crozier, D. Apostolopoulou, M. McCulloch, Numerical analysis of national travel data to assess the impact of UK fleet electrification, *Power Systems Computation Conference*, 2018.

Teaching

- **ISyE 4501 Energy, Efficiency and Sustainability**, Undergraduate class with 19–35 students
Spring 2025, Spring 2024
- **ISyE 6669 Deterministic Optimization**, Graduate class with 24–52 students.
Spring 2025, Fall 2023
- **ISyE 6673 Financial Optimization**, Graduate class with 60 students.
Spring 2026
- **ISyE 8803 Power Networks**, PhD class with 14 students.
Fall 2025

Grants and Contracts

As Principal Investigator

3. Title of Project: Stochastic temperature-dependent models for flexible load dispatch
Agency/Company: Power Systems Engineering Research Center
Total Dollar Amount: \$220,000
Collaborators: Dan Molzahn (Co-PI), Anna Stuhlmacher (Co-PI)
Period of Contract: 8/2025 – 7/2027
2. Title of Project: Quantifying benefits of behind-the-meter solar power for various customers
Agency/Company: Great Plains Institute
Total Dollar Amount: \$44,285
Collaborators: Valerie Thomas (Co-PI)
Period of Contract: 1/2025 – 7/2025

1. Title of Project: Mitigating the risk of life threatening power outages during extreme weather
Agency/Company: Brook Byers Institute for Sustainable Systems
Total Dollar Amount: \$17,500
Collaborators: Brian An (Co-PI)
Period of Contract: 8/2024 – 7/2025

As Co-Principal Investigator

2. Title of Project: Net Zero Carbon Building Using Hydrogen-based micro-CHP
Agency/Company: GT/ORNL Decarb Collaboration Seed Award
Total Dollar Amount: \$152,285
Collaborators: Brian An (PI), Srinivas Garimella (Co-PI)
Period of Contract: 01/2025–06/2026
1. Title of Project: Fast and robust strategies for large-scale mixed-integer SCOPF
Agency/Company: ARPA-E
Total Dollar Amount: \$400,000
Collaborators: Javad Mohammadi (PI), Kyri Baker (Co-PI)
Period of Contract: 6/2022 – 10/2024

Graduate Students

Current Students

- **Rina Davila Severiano**, Fall 2023 – pres
Thesis topic: Demand flexibility from electrified supply chains
Awards: Anderson-Interface PhD Student Fellowship for Research Excellence
Conference presentations: NAPS24, IISE25, PESGM25, INFORMS25
First-author publications: [C16]
- **Xiangxin An** (*Co-advised with Santanu Dey*), Fall 2024 – pres
Thesis topic: Integer decisions in power system operation
Conference presentations: NAPS25
First-author publications: [C17]
- **Yiru Ji**, Spring 2025 – pres
Thesis topic: Data center energy flexibility
Conference presentations: NAPS25
First-author publications: [C18]
- **Catherine Wang**, Fall 2025 – pres
Thesis topic: Models for aggregated dispatchable flexibility

Service

Associate Editor , IEEE Transactions on Energy Markets, Policy & Regulation	Dec 2023 – present
Technical Program Committee , Power Up Conference	Jan 2026 – May 2026
Technical Program Committee , Power Systems Computation Conference (PSCC)	Jul 2025 – Feb 2026
Task Force Chair , IEEE SBSC Task Force on Electric Vehicle Integration	Aug 2023 – Jul 2025
Organizing Committee , Los Alamos Grid Science Winter School	Jul 2024 – Jan 2025

Invited Talks

Decision tools for more flexible electric power grids NC State University, Department of Industrial and Systems Engineering	Oct 2024
Power sector decarbonization with human-in-the-loop Stanford University, Department of Mechanical Engineering	Aug 2023
Newcastle University, Department of Electrical Engineering	Jun 2023
UC Davis, Department of Electrical and Computer Engineering	Mar 2023
Duke University, Department of Civil and Environmental Engineering	Mar 2023

Cornell, Department of Civil and Environmental Engineering	Mar 2023
Cornell Tech, Department of Electrical and Computer Engineering	Mar 2023
Carnegie Mellon University, Department of Electrical and Computer Engineering	Feb 2023
Georgia Tech, Department of Industrial and Systems Engineering	Feb 2023
Rice University, Department of Civil and Environmental Engineering	Jan 2023
Texas A&M, Department of Electrical and Computer Engineering	Dec 2022
Large scale low carbon electricity networks with human-in-the-loop	
Imperial College London, Department of Electrical and Electronic Engineering	Mar 2022
Boston University, Department of Electrical and Computer Engineering	Mar 2022
MIT, Department of Mechanical Engineering	Feb 2022
Temple University, Department of Electrical and Computer Engineering	Feb 2022