Caitlin McMahon

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.   Boston, MA
Consultant

Caitlin McMahon supports E3's work in distributed energy resources analysis. She creates, tests, and utilizes python code to process input data, visualize and QA/QC geospatial electrification forecast results for the Forecasting Anywhere model. She also contributes to E3 projects relying on RESTORE, E3's storage optimization model, including serving as the lead analyst on a project identifying different use cases for valuing V2X. Ms. McMahon has also supported E3 analysis on electric vehicles, standalone storage, hybrid solar-storage systems, and building electrification. Prior to E3, Ms. McMahon completed research at Stanford while earning a master's degree in Energy Resources Engineering. Her research focused on enhancing demand response in commercial buildings. She previously interned in the Grid Modernization group at National Grid where she estimated available hosting capacity for distributed generation and performed protection engineering studies. In the Electrical Engineering department at the New York Power Authority, Ms. McMahon managed projects through design, procurement, print management, regulatory review, and field implementation oversight. In addition to her M.S., Ms. McMahon holds a B.S. in Electrical Engineering from Union College.

Select E3 projects include:

New York City, PowerUp NYC Long-Term Energy Plan (2023). Supported E3's grid readiness workstream, using the Forecasting Anywhere model to complete geospatial analysis and load forecasting. Identified areas that will shift to winter peaking regions as well as areas where future upgrades from Con Edison, the local utility, can align with potential future stresses to the grid. This was one of eight workstreams that E3 led as part of a broader project to develop New York City's first long-term energy plan.

Exelon, Decarbonization Studies (2023 – ongoing). Used Forecasting Anywhere to complete geospatial analysis and load forecasting. Led input preprocessing, converted outputs from E3's PATHWAYS model into inputs for Forecasting Anywhere and the led quality assurance and quality control on that process. Tested the model and integrated new pieces of code to make sure the model runs seamlessly. Modeling and analysis were used by E3 to examine where heat pump and EV charger adoption will occur in six different Exelon service territories.

Confidential Client, V2X Study (2023). Supported data inputs, feature testing, QA/QC, and messaging for E3's RESTORE model as E3 developed a new, specific application of the model to examine V2X for a confidential automaker.

STANFORD UNIVERSITY   Stanford, CA
Researcher, Cooler Project, Sally Benson   September 2020 – June 2022

- Created data analytic tools and statistical models processing one billion data points from 1,000 integrated pieces of campus HVAC equipment, uncovering hidden inefficiencies in the buildings and maximizing system flexibility for demand response
- Led experimentation demonstrating load reductions of 5-29 percent on campus
- Co-managed and improved custom software which: communicated with buildings through Haystack servers in JSON via Skyspark, ran experiments in CLI and tmux on VM, logged errors, processed results in Python, and published results on web-based dashboards
- Produced overview visuals for energy staff and detailed visuals for academic journals
- Collaborated within small team and with stakeholders, including leading meetings with investors and troubleshooting with building managers

NATIONAL GRID   Albany, NY
Grid Modernization Intern   June 2019 – December 2020

- Utilized PI Datalink and excel to extract feeder performance data and create load profiles
- Identified spot loads by analyzing transformer actual versus rated current and voltage
- Troubleshooted faults under worst-case conditions in Operations Management System
- Coordinated fuse sizing according to standards and load analysis on CYME software
- Calculated available hosting capacity for distributed generation without significant cost upgrades based on recloser supervisory capabilities

NEW YORK POWER AUTHORITY   Massena, NY
Developmental Intern   June 2017 – August 2018

- Managed electrical engineering and controls projects through design, procurement, scheduling, print management, regulatory review, field implementation oversight
- Analyzed faulty transformer's Dissolved Gas Analysis results and presented action plan

Education

Stanford University   Stanford, CA
M.S., Energy Resources Engineering   June 2022

Union College   Schenectady, NY
B.S., Electrical Engineering   June 2020