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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.
Senior Consultant

San Francisco, CA

Ms. Liu provides modeling and analysis with a focus on electrification and distributed energy resources. She has worked on several electrification projects examining the benefits and costs of zonal electrification as a means to help transition natural gas systems and electrify buildings. She also leads E3's RESTORE model to assess revenues for a variety of standalone and hybrid storage projects for investors in CAISO and ERCOT. She is a key contributor to E3's avoided cost analysis including both E3's longstanding work on the Avoided Cost Calculator (ACC) for the California Public Utilities Commission, distributed energy resource valuation framework in Illinois and for avoided cost testimony in the Northwest.

Ms. Liu previously worked as a utilities engineer at the Public Advocates Office of the California Public Utilities Commission, developing policy strategies for microgrids, DER integration and aggregation, utility deferral framework, and DER interconnection. Ms. Liu completed her master's degree in Civil and Environmental Engineering from UC Berkeley. During graduate school, she taught a class in optimization fundamentals and constructed an economic model to calculate social costs of carbon under various climate pathways. She received her bachelor's degree in Civil and Environmental Engineering from the University of Illinois at Urbana-Champaign.

Select E3 projects include:

Avoided Cost Calculator, California Public Utilities Commissions (2021 – ongoing). Led model development of a new tool E3 developed for the ACC to integrate calculations of greenhouse gas emissions and capacity avoided costs, updating the fundamental revenue streams for DERs. Model development improved on E3's established ACC model, introducing an updated approach to calculate and improve avoided costs analysis. Starting in 2023, she became technical lead for many avoided cost work streams.

Storage Revenue Modeling for Confidential Storage Developers (2021 – ongoing). Project Manager and RESTORE optimization modeler for multiple projects examining storage revenue opportunities for investors and developers in ERCOT and CAISO. Applies and communicates knowledge of storage operation and optimization.

Targeted Electrification and Gas Decommissioning, California Energy Commission (2021-2023). Led model development and contributed report writing for an E3 study. The report developed a cost-benefit methodology for targeted electrification paired with targeted gas decommissioning, ultimately finding broad cost effectiveness for zonal electrification when paired with the decommissioning of parts of the natural gas system.

CALIFORNIA PUBLIC UTILITIES COMMISSION

San Francisco, CA

Utilities Engineer, Public Advocates Office

2020-2021

- Prepared comments and reports on commercializing microgrids and transitioning microgrids away from non-renewable energy resources
- Recommended processes to use distributed energy resources to defer electric distribution upgrades
- Researched technical issues and policy mechanisms to integrate and aggregate distributed energy resources

UNIVERSITY OF CALIFORNIA, BERKELEY

Graduate Student Instructor

Berkeley, CA

January 2020 – May 2020

- Taught students to use quantitative optimization tools (e.g. linear programming and nonlinear programming) and MATLAB for planning and managing large-scale civil and environmental systems
- Led six-hour labs including planning for future Californian portfolio, scheduling a construction project, and resource allocation for water supply systems

ENVIRONMENTAL INTEGRITY PROJECT

Research Intern

Washington, DC

June 2019 – August 2019

- Assisted development of AshTracker, a database recording ground water contamination near coal disposal areas from more than 250 coal-burning power plants in U.S.
- Investigated the Greenhouse Gas emissions and air pollution from oil, gas and petrochemical sectors in the U.S.
- Tracked changes in funding and staff of all state environmental agencies over the most recent decade in response to reduced federal oversight and enforcement

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Research Assistant

Urbana, IL

2018 - 2019

- Organized and analyzed measurements of the sources, energy use, and environmental impacts of traditional biomass stoves in rural China

Education

University of California, Berkeley
M.S., Civil and Environmental Engineering

Berkeley, CA
2020

University of Illinois at Urbana-Champaign
B.S., Civil and Environmental Engineering with minor in Business

Urbana, IL
2019