Sumin Wang

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC. San Francisco, CA
Managing Consultant

Ms. Wang's recent work focuses on valuing and integrating flexible demand-side resources in integrated system planning framework, solving challenges around electric vehicles (EV) adoption, and optimizing resource portfolios to achieve a decarbonized future. She also has experience in conducting market price forecasting using AURORA. She is motivated to help utilities, system operators, developers, and state agencies to solve challenges associated with integrating variable resources and decarbonization efforts to the electric system. Ms. Wang holds a Master of Environmental Management from Duke University and double B.S. degrees, in Management Science and Earth Sciences, from the University of California, San Diego.

- **CPUC Avoided Costs Calculator (ACC), 2021-present**. Managed the development of the 2022 CPUC ACC and participated in the update of the 2021 CPUC ACC. The ACC is used to evaluate the cost-effectiveness of utility DER programs in CA.
- **CPUC IRP Vehicle Grid Integration (VGI) Analysis, 2021-present.** Leading a team to model active VGI resources in E3's capacity expansion model RESOLVE. The analysis develops methodologies for the CPUC Integrated Resource Plan (IRP) Proceeding to quantify the value of VGI in the context of system planning and the impact of VGI on resource portfolio.
- **CEC CalFlexHub, 2022-present**. Leading the development of flexible load feature in RESTORE to optimally dispatch flexible load resources and evaluate the impact of load shift on peak load and system avoided costs in collaboration with the Lawrence Berkeley National Laboratory. The CalFlexHub (The California Load Flexibility Research and Development Hub) is a platform to demonstrate the capability of DER technologies to provide flexible electricity load for CA.
- **OPPD Decarbonization Pathways, 2021.** Modeled the resource build and generation cost impact of OPPD's net zero by 2050 goal in E3's capacity expansion model RESOLVE to inform OPPD's decarbonization pathways. The analysis shows that OPPD can achieve net zero while balancing affordability and reliability and guides the mix of low carbon resources (solar, wind, storage) that OPPD needs to build in the near and long term. The analysis models the conversion of coal to gas units in OPPD and shows the need to repower these resources in mid 2030s and build firm resources to meet challenges during extreme events.
- **EWEB Electrification Study, 2021.** Designed an Excel model to help EWEB evaluate the costs and benefits of building and vehicle electrification programs. The results present that EVs represent a significant carbon reduction opportunity and load impact and will inform EWEB's Electricity Supply Planning efforts going forward.
- **SMUD NEM Successor Tariff, 2021.** Quantified the cost shift impact of different rate designs for BTM solar and storage assets in SMUD's territory. The analysis informed SMUD's 2022 rate plan.
- **E3 Eastern Price Forecasting, 2020**. Developed the AURORA model to forecast electricity prices for NYISO, ISONE and PJM using AURORA to 2050 to support investment decisions.
- **Xcel Energy Transportation Electrification Program (TEP), 2020**. Conducted Cost Benefit Analysis to support Xcel Energy to file its TEP in Colorado, New Mexico, and Minnesota and announce its

corporate EV goal. The proposed program in Colorado totals $102 million over 3 years. The proposed COVID recovery rebate program in Minnesota provides $150 million rebates to light and heavy-duty vehicles. Xcel Corporate goal aims to power 1.5 million of electric vehicle across communities they serve by 2030. Our analysis shows that EV adoption can bring billions of benefits to Xcel ratepayers, drivers, and the state.

- **2018 Self Generation Incentives Program (SGIP) Advanced Energy Storage Impact Evaluation, 2019**. Evaluated GHG emissions of BTM storage assets in 2018 and its ability to meet the newly introduced carbon cap for California Public Utilities Commission. The analysis finds that storage assets receiving SGIP incentives led to more emissions in 2018 because of suboptimal rate design.

Rocky Mountain Institute Basalt, CO
Intern June 2019 – August 2019

- Led the development of a community-based optimization model in Python to identify the least-cost portfolios to electrify unelectrified villages in Nigeria and Ethiopia

Duke University Durham, NC
Teaching Assistant January 2019 – April 2019

- Held office hours; graded assignments for Dr. Luana Lima on *Time Series Analysis*

Walmart Global Sourcing & Environmental Defense Fund Shenzhen, China
EDF Climate Corps Fellow June 2018 – August 2018

- Modeled and identified up to 16.7 million metric tons of CO2 reduction potential by improving energy efficiency of household appliances
- Coauthored a report on technology options to improve energy efficiency of 7 categories of electric appliances sourced by Walmart
- Measured CO2 emission reduction achieved by Walmart Global Sourcing since 2015, and provided revising feedback to the accounting methodology of Project Gigaton

Duke University, Energy Access Program Durham, NC
Graduate Student Researcher August 2017 – April 2019

- Led a team to design an ArcGIS Online application for microgrid developers to identify potential markets in Zambia
- Interviewed key energy stakeholders to understand challenges faced to increase electrification rate in Zambia (Visited in August 2018)
- Conducted systematic literature reviews and coded 4400 papers on energy access
- Researched import tariffs and analyzed data of off-grid solar home systems in East Africa

UC San Diego La Jolla, CA
Research Assistant November 2015 – January 2017

- Research Assistant to Dr. Richard Carson on the impacts of carbon tax on cement prices
- Research Assistant to Dr. Yuyan Shi on factors influencing marijuana usage in the United States

Education

Duke University — Durham, NC
M.S, Environmental Management (Energy & the Environment) — 2019

University of California, San Diego — La Jolla, CA
B.S., Management Science (Distinction) — 2017
B.S., Earth Sciences (Summa Cum Laude) — 2017