Ye Zheng

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

Ye Zheng supports E3's Asset Valuation practice area. She focuses on due diligence projects for both buy-side and supply-side clients, and the economics, policy, and maturity of long-duration energy storage, hydrogen, and other emerging technologies. For E3's market price forecasting, Ye examines emissions constraints policies, renewable energy costs, technical potential, and behind-the-meter solar capacity. She is also a lead analyst on RECOST, E3's custom tool for resource cost estimation. Ye works across the entire western region, including California, the Pacific Northwest, and the Southwest.

Ye joined E3 after earning her Master's degree in Civil and Environmental Engineering at Stanford University. As a Shultz fellow at the California Department of Water Resources, she conducted studies on the State Water Project's renewable energy procurement plan for reaching their net-zero energy goals. Interning at Noria Energy, she developed an optimization model for dispatching battery energy storage systems. In addition to her master's degree, Ye holds a B.S. in Civil and Environmental Engineering from the McGill University. During her undergraduate study, she cofounded sustainability organizations for coordinating food donations in China and designing and constructing footbridges for isolated communities.

Notable E3 projects include:

Confidential Client, Hydrogen Pipeline and Market Assessment, 2024. Contributed to E3's assessment of the potential market for hydrogen as a low-carbon energy carrier in the Desert Southwest. Analyzed electricity demand and supply for a potential pipeline, with an emphasis on the unique challenges and constraints associated with an infrastructure project.

Confidential Client, Cost-Benefit Study for Balancing Authority, 2024. Performed a cost-benefit study (CBA) to assess the economic impacts of different market structures in the West, for both individual members as well as the broader council. Used PLEXOS to model various scenarios.

Confidential Client, Offshore Wind Developer, 2024. Built a new model to forecast load growth and energy demand in Hawai'i to help an offshore wind developer assess its market potential, within both statewide load growth demands and climate goals.

Confidential Client, Long Duration Storage Valuation, 2024. A confidential client retained E3 to provide insights of storage market contract prices and guidance on utility contracting financial terms for their potential gravity energy storage system (GESS) project. Reviewed relevant utility Request for Proposals (RFPs) to summarize key financial terms, such as different contracting structures, development securities, and performance guarantees, and made recommendations for optimal market strategies.

Confidential Client, Pumped Storage Hydropower, 2023-2024. Built a new model to evaluate the cost and potential revenue stream for a pumped storage hydropower asset for an engineering company in Kentucky, with a focus on total value, including energy value, ancillary service, and capacity value. Analyzed capital costs and levelized fixed costs for the asset, forecasting from present day to 2050. Made recommendations on whether and when to build given policy landscape, existing technologies, and local utility energy demand.

Confidential Client, Community Choice Aggregation Support, 2023. Forecasted emissions prices over time under different market scenarios, given a new cap-and-invest program in the state.

Integrated Resource Planning, California Public Utilities Commission (CPUC), 2021-ongoing. As part of the E3 team, Ye is continuously supporting the CPUC in its IRP process in a wide range of workstreams. In particular, she supports yearly evaluations of renewable resource costs, load forecasts, and generation mix forecasts, using E3's RECOST model.

CALIFORNIA DEPARTMENT OF WATER RESOURCES Sacramento, CA
Stanford Shultz Energy Fellow July 2023 – September 2023

- Assessed the risks of hydrology variations and renewables curtailment on State Water Project's renewable energy procurement plan; evaluate the potential quantity and cost of unbundled REC purchases considering these risks
- Evaluated the cost-effectiveness and feasibility for CDWR to consider a 24/7 free-carbon energy target using various combinations of solar, battery, wind, and DWR's hydro resources; analyzed the trade-offs between CDWR's hydro dispatchment patterns informed by the CAISO price signal, and the the benefits of procuring battery and wind resources to meet the 24/7 matrix

NORIA ENERGY Sausalito, CA
Project Development Intern January 2023 – June 2023

- Developed an optimization model for dispatching battery storage energy systems using Python and Julia; Created a user interface for testing solar and battery sizes on using Excel VBA
- Prepared financial models for Behind-the-Meter commercial solar and battery projects, including modeling tariff data and structures, generating and cleaning load and solar production data, and calculating tax benefits

U.S. GREEN BUILDING COUNCIL Washington, DC
LEED Technical Development Fellow June 2022 – December 2022

- Created a lifecycle analysis model to estimate GHG emission from building energy use and occupant transit for LEED Gold certified buildings in California; informed the allocation of credit scores on the categories of energy and transportation section of the LEED rating system
- Analyzed spatial-temporal trends in market achievement rate for Beta LEED credits under market performance testing, utilizing a dataset of over 2600 LEED certified buildings; suggested the influence of building types and locations on achievement rates for energy and transportation credits

STUDENT ENERGY Montreal, QC
Regional Coordinator & GCoM Research Team Member May 2020 – December 2021

- Contributed as part of a team of 12 regional coordinators in conducting a worldwide research program, the Global Youth Energy Outlook; gathered youth's perspectives on the opportunities and challenges of sustainable energy transition in their regions
- Led a team of 50 volunteers to survey over 4000 youth through social media outreach and partnership with local NGOs and educational institutes; Analyzed the survey responses and incorporating regional energy policy and technology insights in the final report
- Delivered a presentation to an Asian Development Bank Youth Initiative meeting

Education

Stanford University Stanford, CA
M.S., Sustainable Design and Construction June 2023

McGill University Montreal, QC
B.S., Civil and Environmental Engineering May 2021