Madeline Macmillan, Ph.D.

44 Montgomery Street, Suite 1500, San Francisco, CA 94104
madeline.macmillan@ethree.com

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

Dr. Madeline Macmillan supports E3's Integrated System Planning practice area. Madeline joined E3 after earning a doctorate in Advanced Energy Systems from the Colorado School of Mines where her research focused on the development of uncertainty-informed energy system planning methods for improved climate resilience. While at Mines, Maddie also worked as a researcher at the National Renewable Energy Laboratory (NREL) where she advised energy system planning efforts in remote and disaster-prone areas of the United States with national security implications. Prior to graduate school, she earned a bachelor's degree in environmental engineering from North Carolina State University.

ASCEND ANALYTICS   Boulder, CO
Optimization Development Engineer   August 2023 – December 2023

- o Developed mixed integer linear program optimization models to advise renewable and battery operations across different market conditions to maximize revenue
- o Contributed to stochastic formulations to improve model efficiency and dispatch decisions

NATIONAL RENEWABLE ENERGY LABORATORY   Golden, CO
Graduate Researcher   January 2020 – December 2023

- o Added REopt capabilities to consider resilience and the impacts of climate change on long-term energy system planning, design, and dispatch
- o Expanding the REopt formulation to consider stochastic climate scenarios over multiple years
- o Working directly with customers to advise on life cycle cost impacts of adding energy generation assets to microgrids to support mission-critical services
- o Advancing open-source solver capabilities within ReEDS, improving the model's accessibility

Researcher   August 2019 – December 2019
SULI Intern   June 2019 – August 2019

- o Contributed computer program development to a new NREL tool, Cambium
- o Used future marginal electricity prices to better assess renewable technologies
- o Improved REopt battery storage degradation modeling in a mixed integer linear programming formulation

Education

Colorado School of Mines   Golden, CO
Ph.D., Advanced Energy Systems   December 2023

North Carolina State University   Raleigh, NC
B.S., Environmental Engineering   May 2019