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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.
Senior Managing Consultant

San Francisco, CA

Mr. Andrews supports E3's diverse work on electrification and distributed energy resources. His expertise includes building decarbonization, understanding the effects of climate of grid loads, geospatial forecasting of electrification loads, and the future of the natural gas system. He is an experienced energy modeler, writing and developing new modeling capabilities for both the Forecasting Anywhere model and E3's broad suite of building electrification modeling tools. Working with an E3 team supporting California Energy Commission, Mr. Andrews led the generation of WECC-wide hourly load forecasts to 2050 representing various realizations of a climate-impacted future. Through his work on E3's California 2025 & 2028 Codes & Standards Support, he led the development on a toolkit to accurately and repeatably produce load profiles for any segment of the US building stock down to the census tract level. Additionally, he has evaluated business opportunities for new players in the residential solar and storage market with E3's Asset Valuation group. Mr. Andrews holds an M.E. in Mechanical Engineering from the University of California, Berkeley, and both a B.S. and a B.A. from Swarthmore College.

Select E3 projects include:

California Energy Commission, Climate Resilience (2024-2025). Led the creation of WECC-wide hourly grid load forecasts for 2025-2070 for 5 Global Climate Model (GCM) realizations. This dataset aims to represent the wide band of uncertainty that climate change introduces to grid loads. This in turn allows grid modeling teams to see the effects that climate change could have on capacity expansion plans and production cost forecasts.

Xcel Energy, Clean Heat Analysis (2023). Developed E3's building electrification modeling toolkit to characterize building stock in Xcel territory for tens of thousands of building simulations. Evaluated the grid and bill impacts of electrification across a variety of factors. Using the representative data, aggregated the impacts of specific technology adoption decisions. These outputs fed into broader E3 modeling that generated supply curves for the costs of Xcel's potential transition to a clean heating utility.

New York City, Long-Term Energy Plan (2022-2023). Contributed to the project workstream assessing the electric grid readiness for increasing heat pump and EV charging loads. Applied Forecasting Anywhere to estimate the geospatial grid impacts of electrification across variety of sectors including commercial, residential, and electric vehicle chargers. This network-level geospatial forecast of load impacts was used with publicly available data from Con Edison to determine where additional investment or analysis may be necessary to avoid issues of resource reliability and grid readiness in the future.

Confidential Utility Client, Clean Heat Analysis (2023). Technical lead on an E3 project modeling the grid and bill impacts of a clean heat standard for a utility. Developed and applied model to characterize building stock, evaluate impacts of electrification, and then aggregated impacts of technology adoption

decisions. With this information, E3 produced a cost supply curve examining emissions abatement on both the supply side and the demand side.

GRIDSCAPE SOLUTIONS

Project Engineer

San Francisco, CA
January 2021 – October 2021

- Led team of 10 international engineers to regularly analyze and evaluate Photovoltaic and Battery system sizing in prospective multi-million dollar DER' projects.
- Developed and deployed internal modelling software to automate analysis workflows and improve project tracking abilities.

Project Engineer Trainee

August 2020 – January 2021

- Created an energy use simulation for Community Center DER Feasibility Study and evaluated its resiliency capabilities for Red Cross qualifications finding that a microgrid is not only cost effective, but can easily meet resiliency demands.

VERKIS CONSULTING ENGINEERS

Research Intern

San Francisco, CA
May 2018 – August 2018

- Undertook resource and market availability analysis for centralized geothermal district heating systems in NE USA revealing potential resource-demand overlaps in Michigan representing an annual market of 180 million USD for the city of Detroit.

Education

University of California, Berkeley
M.E., Mechanical Engineering

Berkeley, CA
May 2020

Swarthmore College
B.S., Engineering; B.A., Art

Swarthmore, PA
May 2019