Michaela Levine

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

Ms. Levine's work focuses on analyzing opportunities to leverage distributed energy resources to support the clean energy transition and supporting clients' transportation and building electrification efforts. She specializes in analysis of electrification and flexible loads, modeling building electrification and transportation electrification at scale. She is also an experienced modeler in Forecasting Anywhere, applying the tool to provide a distribution planning understanding of the impact of distributed energy resources on the grid.

Prior to joining E3, Ms. Levine researched opportunities to use workplace electric vehicle charging for demand response at SLAC National Accelerator, and interned at a VGI startup, Weave Grid, where she developed simulations to assess the impacts of managed and unmanaged electric vehicle charging on distribution system assets. Ms. Levine also was a Sustainability Fellow at the Burlington Electric Department where she helped the utility identify opportunities to improve its integrated resource planning process. In addition to her master's degree, Ms. Levine joined E3 after completing her master's in civil and environmental engineering in the Atmosphere/Energy program at Stanford University and also holds a B.A. in Geoscience with a Concentration in Environmental Studies from Williams College.

Select E3 projects include:

- **California Energy Commission, California Load Flexibility Research and Development Hub (2022-ongoing):** Developing benefits quantification tool that applies E3's modeling outputs to evaluate the grid benefits of thousands of representative customer types to dissect and analyze modeling results, drawing conclusions about the types of technologies that should be prioritized for study and investment. This project, part of the the CEC-funded CalFlexHub led by Lawrence Berkeley National Laboratory, assesses the grid benefits of flexible load technologies.

- **Confidential Client Microgrid and V2X (2023):** Advised clients on the current state of microgrid deployment, microgrid market outlook, and the role of electric vehicles in microgrids. Led modeling of vehicle-to-home, vehicle-to-building, and vehicle-to-microgrid use cases and assessment of potential value using E3's RESTORE model.

- **PowerUpNYC Grid Readiness Evaluation (2022-2023):** Evaluated the ability for New York City's electric grid to accommodate incremental building and transportation electrification required to support New York City and New York State's climate targets. Citywide electrification forecasts were geospatially allocated at the distribution network level using E3 and Integral Analytics' Forecasting Anywhere model to assess interactions of incremental electrification with existing loads and grid infrastructure. Results from the grid readiness evaluation were used to inform near-term actions for the Mayor's Office of Climate and Environmental Justice.

- **EV Infrastructure Assessment for California's Proposition 30 (2022):** Assessed the geospatial allocation of EV chargers throughout California at a census-tract level from Proposition 30 funding

for EV chargers proposed in California's November '22 consolidated general election. The analysis used Forecasting Anywhere, a model developed in collaboration between E3 and Integral Analytics. Geospatial allocation results were used to assess Proposition 30's ability to fill the gap in EV infrastructure needed to support California's climate goals and to increase EV charger buildout in California's disadvantaged communities.

- **Confidential Client, Vehicle-Grid-Integration Valuation and Grid Readiness (2022):** Assessed the regional VGI market potential across the U.S. leveraging E3's RESHAPE-EV and VGI Value models. Trained the confidential client on use of RESHAPE-EV for further exploration of VGI potential and value under specific use cases.

- **Electrification Strategy Development, Nova Scotia Power, 2022:** Contributed to the development of Nova Scotia Power's electrification strategy through technical analysis. Assessed the impact of building and transportation electrification to Nova Scotia Power's annual and peak load leveraging E3's RESHAPE models. Conducted cost-benefit analysis of electrification from the perspective of adopters, ratepayers, and the province.

- **Washington State Department of Commerce, Financial Impacts of Building Electrification on Consumer Owned Utilities and their Customers (2021 – 2022):** Contributed to a study focusing impacts and economics of electrification for consumer owned utilities in Washington. Assessed the system load impacts of electrification in 2050 at the scale consistent with the *2021 State Energy Strategy* on four consumer owned utilities using E3's RESHAPE model. Explored how various managed electrification strategies can reduce system impacts for these utilities.

- **Maryland Commission on Climate Change, Maryland Building Decarbonization Study (2021):** Contributed to E3's team that supported the Maryland Commission on Climate Change (MCCC) and the Maryland Department of the Environment (MDE) in examining three potential pathways to achieve decarbonization of Maryland's building stock by mid-century and additional targeted sensitivities. Used E3's RESHAPE model to assess the electric system impacts of each pathway. Develop the gas and electric system revenue requirement models used to assess the total resource cost of each pathway and sensitivity.

- **Evaluation of Portland General Electric's Transportation Electrification Pilot Programs (2020)**: Assessed the grid impact of public EV charging stations and electrified public transit. Quantified the impact of peak period pricing on shifting charging load and monthly subscription pricing structures on charging behavior. Examined differences in charging behavior between private EV drivers and TNC EV drivers.

- **Benefit-Cost Analysis of Transportation Electrification in the Xcel Energy Minnesota Service Territory (2020)**: Used E3's EVGrid tool to assess the cost and benefits of proposed EV programs in Xcel Energy's Relief & Recovery filing, which included personal LDV rebates, public DCFC charging network expansion, and transit bus rebates.

- **Open Vehicle-Grid Integration Platform (2020-2021):** Contributed to a team conducting initial research and analysis of vehicle grid integration's (VGI) market opportunities and potential business models.

- **New York City Local Law 97 Action Plan (2020-2021):** Contributed to the development of a model to assess the cost and carbon impact of strategies for New York City government agencies to achieve deep decarbonization in compliance with LL97.

- **Forecasting 2045 Loads and Resources for San Diego Gas & Electric Transmission Planning (2021):** Developed a 2045 hourly load forecast for SDG&E's service territory under a high electrification scenario using E3's RESHAPE model in addition to other public data sources.

WEAVE GRID   San Francisco, CA
Systems Engineering Intern   2019 - 2020

- Simulated the impact of unmanaged electric vehicle charging on distribution system assets and the ability of Weave Grid's products to minimize overloading of those assets.
- Implemented a transformer degradation model to evaluate accelerated aging caused by unmanaged and managed electric vehicle charging and conducted Monte Carlo simulations to evaluate the range of expected transformer degradation under various electric vehicle adoption conditions.

ALPHATARAXIA, LP   Los Angeles, CA
Quantitative Analyst Intern   Summer 2019

- Developed data scrapers using Python and PHP to collect, process, and ingest long-term transmission planning data and transmission outage data.
- Analyzed transmission system planning data for project completion timeliness.
- Developed transmission outage forecasts based on historical patterns.
- Developed internal data dashboards to aid trading decisions.

SLAC NATIONAL ACCELERATOR   Menlo Park, CA
Research Assistant   2019

- Developed methodologies and associated analytics to quantify the benefits of managing electric vehicle charging through an optimal control algorithm.
- Assessed the financial benefit of workplace electric vehicle charging's participation in demand response programs.

BURLINGTON ELECTRIC DEPARTMENT   Burlington, VT
Sustainability Fellow   Summer 2018

- Researched best practices in integrated resource planning and wrote a report recommending changes to Burlington Electric Department's IRP process in response to requests from regulators, emerging technologies, climate uncertainty, and the City of Burlington's net-zero energy vision.
- Conducted a commercial demand response potential assessment for Burlington Electric Department's territory.

INDUSTRIAL ECONOMICS, INC.   Cambridge, MA
Research Analyst   2016 - 2018

- Provided technical assistance with geospatial analyses, literature reviews, data mining efforts, and injury allocation assessments for several Natural Resource Damage Assessment cases.
- Managed and produced administrative records for both the public and for litigation.
- Assisted with the development of a long-term web-based data management system providing quality assurance testing and requirements definition.

- o Conducted comparative market research on eco-labelled products.
- o Developed a survey to study the commuting habits and preferences of Massachusetts residents.

SIERRA CLUB   Washington D.C.
Beyond Coal Campaign Intern   Summer 2015

- o Projected renewable energy deployment rates in the northeast and associated impacts on achievable carbon caps for the Regional Greenhouse Gas Initiative (RGGI).
- o Assisted with grassroots outreach efforts.

Education

Stanford University   Stanford, CA
M.S., Civil and Environmental Engineering (Atmosphere/Energy)   2020

Williams College   Williamstown, MA
B.A., Geoscience with a Concentration in Environmental Studies   2016