# Lindsay Bertrand

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

Since joining E3 in 2022, Ms. Bertrand has supported E3's Climate Pathways, Electrification, and Distributed Energy Resources (DER) practice areas, where she works with utilities, state agencies, and businesses to understand how the integration of DER can support a clean energy future. Her work focuses on building and vehicle electrification, value of DER, benefit cost analysis, utility rate design, and non-energy benefits. Prior to E3, she was involved in energy efficiency consulting for electric and gas utilities at Navigant Consulting (now Guidehouse), building energy performance analyses at HOK, distributed photovoltaic research at Rocky Mountain Institute, and tidal powder feasibility studies at the National Renewable Energy Laboratory. She holds an M.S. degree in Civil and Environmental Engineering from Stanford University and a B.S. degree in Environmental Engineering from the University of Colorado at Boulder.

Select E3 projects include:

- **Building Electrification Affordability, New York State Energy Research and Development Authority (2022-2024).** Project manager for an E3 team analyzing impacts on customer utility bills resulting from building electrification. E3's analysis evaluates impacts for a variety of electrification and efficiency measures including heat pumps, domestic hot water electrification, and upgrades to building envelope. The study focuses on New York's regulated and unregulated affordable housing but also includes market rate housing. Model results include pre- and post-electrification utility bills with special considerations for how utility bill burdens may shift between building owners and tenants as multifamily sites electrify. Separate results quantify the cost shift that can occur when electric utility customers with heat pumps pay more than their share of electric grid costs under standard electric rate structures. E3 also examines how utility bill and cost shift results change when electrified customers are allowed access to non-standard rates with lower volumetric charges. As part of this work, E3 is assisting NYSERDA in synthesizing and presenting results for various stakeholders.
- **Benefits and Costs of Customer Solar under Net Energy Metering, Washington Public and Investor-Owned Utilities (2023).** Project manager for an E3 team who worked with a group of public and investor-owned utilities to assess the benefits, costs, and cost shifts associated with customer solar under net energy metering (NEM) in Washington. With the help of a Technical Advisory Group that included utilities, labor groups, environmental advocates, solar industry advocates, business advocates, and the Washington Department of Commerce, E3 developed a robust catalog of benefits and costs of customer solar to evaluate. E3 also worked with a group of six utilities to develop a database of 30,000 NEM solar systems and calculate a forecast of hourly avoided costs for each utility. E3 developed a benefit-cost analysis including lifecycle cost tests, a cost shift forecast, and rate and bill impacts. As part of this analysis, E3 quantified additional societal benefits to residents of Washington including reduced criteria pollutant emissions, reduced greenhouse gas emissions, and reduced land use impacts. E3's report

summarizes the results of the benefit-cost analysis and also provides a jurisdictional review of tariff designs for customer generation.

- **Clean Heat Plan Support, Xcel Energy Colorado (2023).** Member of E3 project management team that supported Xcel Energy with resource costs, emissions impacts, and resource portfolio analysis for its 2023 Colorado Clean Heat Plan regulatory filing. To accomplish this, the E3 team developed a gas utility decarbonization resource portfolio model, which allows users to define costs and emissions reductions constraints and develop least cost portfolios to meet these objectives based on candidate decarbonization resources. E3 performed modeling to characterize the costs, resource potential, and emissions impacts for resources including recovered methane, green hydrogen, blue hydrogen, building electrification, demand side management, certified natural gas, and greenhouse gas offsets.
- **Investigation of Alternative Ratemaking, Confidential Utility Client (2023).** Project manager for an E3 team reviewing alternative ratemaking mechanisms including formula rate plans, multi-year rate plans, performance-based ratemaking, and performance incentive mechanisms. E3's work included a jurisdictional review, benchmarking to other utilities, review of alternative rate options, and a roadmap for stakeholder engagement.
- **Rate Design for the Energy Transition: Getting the Most out of Flexible Loads on a Changing Grid, Energy Systems Integration Group (2022-2023).** One of the E3 authors who contributed to a whitepaper published as part of a series by the Energy Systems Integration Group (ESIG). The whitepaper discusses the ways that power system cost structures are changing under decarbonization and describes the implications for the value of customer response. The paper also presents a multi-part dynamic rate design that reflects the underlying costs of an increasingly renewable grid, provides actionable price signals to DERs, and supports vehicle and building electrification that is necessary to achieve decarbonization targets.
- **ZEV Market Development Support, Confidential Client (2022-2023).** Project manager for an E3 team that synthesized findings from studies analyzing the level of zero emission vehicle (ZEV) adoption needed to meet climate goals. Additional project tasks included a report on the state of ZEV technology and barriers to adoption as well as the identification of policies to support ZEV adoption.
- **Decarbonization Plan, National Parks of Lake Superior Foundation (2022-2023).** Project manager for an E3 team that helped develop an investment plan for each of the five parks of the National Parks of Lake Superior Foundation (NPLSF) to achieve 100% decarbonization in land-based operations by reducing building energy demand, eliminating fossil fuel use, and switching to renewable electricity. The E3 team completed the supply-side energy assessment for this plan, which identified strategies to supply the parks with renewable energy from on-site solar, battery energy storage, and the purchase of off-site renewable energy through local utilities.
- **GHG Valuation Support, Confidential Client (2022).** Reviewed and evaluated the greenhouse gas savings achieved with customer portals that provide information about energy consumption.

**406 ENGINEERING** Kalispell, MT
*Engineer* October 2021 – April 2022

- Completed environmental analyses for wastewater treatment systems
- Prepared design calculations and technical reports for civil engineering infrastructure projects
- Managed project tasks and schedules; communicated with clients

**NAVIGANT CONSULTING, CLEAN ENERGY PROGRAMS** Boulder, CO
*Managing Consultant* September 2017 – December 2018

*Senior Consultant* June 2015 – August 2017

- Led project teams in the analysis and reporting of energy efficiency research, potential estimation, and program evaluation activities for electric and gas utilities
- Managed project budgets and schedules, reviewed analyses and deliverables, developed presentations and reports, and presented results to clients
- Calculated energy savings, demand savings, and costs associated with residential, commercial, and industrial energy efficiency measures

**HOK** San Francisco, CA
*Engineering Design Professional* September 2014 – May 2015

- Conducted whole-building energy performance analyses; completed LEED documentation
- Created building energy models in IESVE and EnergyPro

**ROCKY MOUNTAIN INSTITUTE** Boulder, CO
*MAP Sustainable Energy Fellow* June 2013 – September 2013

- Quantified the economic impacts that distributed photovoltaic systems have on utility customers under a variety of scenarios and utility rate structures
- Developed modules for the MATLAB-based Electricity Distribution Grid Evaluator model

**NATIONAL RENEWABLE ENERGY LABORATORY** Boulder, CO
*Science Undergraduate Laboratory Intern* June 2011 – August 2011

- Evaluated the technical and economic feasibility of tidal power generation
- Developed an Excel model to calculate the potential energy output of a tidal farm, the cost of energy for tidal power, and reductions in diesel fuel use and associated emissions

## Education

Stanford University Stanford, CA
*M.S., Civil and Environmental Engineering (Atmosphere/Energy)* March 2014

University of Colorado at Boulder Boulder, CO
*B.S., Environmental Engineering (Summa Cum Laude)* December 2011