



# Michael Sontag, P.E.

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## **ENERGY AND ENVIRONMENTAL ECONOMICS, INC.**

San Francisco, CA

*Associate Director*

Mr. Sontag's work focuses on leveraging distributed energy resources to support and enhance a clean energy future. Since joining E3 in 2016, he has helped lead E3's work to calculate grid-based emissions in order to determine benefits resulting from the widespread electrification of building loads over time. He has also worked extensively in the area of flexible loads, both in terms of modeling their impact on building decarbonization efforts and understanding the business and operational aspects of emerging technologies like energy storage. As part of his work, Mr. Sontag has created many intuitive, user-focused Excel tools to help public stakeholders and private developers make informed, data-driven decisions based on E3's research.

Before joining E3, Mr. Sontag worked as an energy efficiency engineer and was also a product manager for a sustainable building materials company. He received his M.S. in Civil and Environmental Engineering (Atmosphere and Energy) from Stanford University, and a B.S. in Mechanical Engineering from the University of California, Berkeley. He earned his Professional Engineer license in California in 2014. Select projects from his work at E3 include:

### *Electric Grid Emissions Factors:*

- Developed a performance-based demand-side pilot program for California universities in collaboration with a Southern California utility that incentivizes GHG emissions reductions rather than traditional energy or demand savings
- Created an Excel model for large, campus-based end-users to track baseline emissions and corresponding emissions reductions through assorted demand-side measures
- Developed a model to calculate time-dependent, long-run marginal GHG emissions based on forecasted wholesale energy market prices to better understand the GHG emissions benefits of building electrification in California; E3's methodology is helping utilities design successful demand-side programs for an electrified future and may be incorporated by the California Energy Commission into state building codes
- Evaluated utility ownership models of electric ground-source heat pumps and prospective system benefits and ratepayer impacts on behalf of a large state energy agency

### *Energy Storage and Flexible Loads:*

- Modeled operational characteristics and market potential using E3's proprietary tools for a variety of energy storage projects (e.g., lithium ion batteries, compressed air energy storage, and vanadium flow batteries) for storage technology companies and project developers seeking participation in the CAISO and NYISO markets

- Created an analysis to estimate the value to the grid of flexible water conveyance pumping in California's State Water Project through both an avoided cost framework and a resource procurement framework
- Modeled potential bill savings for a behind-the-meter thermal energy storage system for a college campus

### Other work

- **Energy Efficiency Cost Effectiveness:** Performed market analysis in several geographical regions and developed a cost effectiveness calculator for an energy efficiency technology company
- **California Integrated Resource Plan:** Provided data analysis and model development support to update demand side resources in E3's RESOLVE model for California's Integrated Resource Plan

### **NEWCOMB ANDERSON McCORMICK**

*Energy Engineer*

San Francisco, CA

April 2012 – August 2014

- As project manager, created a strategic energy plan for a local regional parks district; led a team that audited facilities at 27 parks, then created a strategic energy plan consisting of 12 proposed energy efficiency measures with calculated annual energy savings of 800,000 kWh and 10,000 th plus 2 MW of solar systems to offset remaining district-wide electrical load
- Developed custom energy calculations in Excel to model savings for a variety of lighting and mechanical projects, ranging from simple line-item estimates to data-based regression analysis and in-depth hourly usage models; used industry tools (i.e., eQUEST) to support estimates when necessary and performed measurement and verification to justify calculated savings
- Modeled solar system performance at over 100 sites for civic and educational institutions; mapped arrays on site plans, sized potential systems, modeled future output of planned solar systems, created 25-year financial analyses in Excel for each project, and presented findings to clients
- Performed energy audits at over 40 sites; worked with clients to identify potential energy savings measures, advised on optimal project packages, and assisted with incentive applications

### **SERIOUS ENERGY QUIETROCK DIVISION**

*Product Manager*

Sunnyvale, CA

January 2011 – October 2011

- Led product management effort for the development and release of two new sustainable building products by creating product specifications and managing project tracking
- Developed product definitions and translated them into tangible product features based on market research, working with a cross-functional team consisting of engineering, operations, marketing, sales, and upper management
- Created an Excel model to analyze cost, revenue, and profit margins for the division's entire product line; identified gaps in pricing structure and defined new pricing strategy

### Education

Stanford University

Palo Alto, CA

*M.S., Civil Engineering, Atmosphere and Energy Program*

2016

University of California, Berkeley

Berkeley, CA

*B.S., Mechanical Engineering*

2010

### Licenses

Professional Engineer: Mechanical Engineering – HVAC/Refrigeration, California, 2014

### Citizenship

United States