



Aryeh (Ari) Gold-Parker, Ph.D.

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.
Managing Consultant

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Dr. Gold-Parker supports E3's bulk grid and electrification practice areas. On the bulk grid team, his work for utilities, regulators, and asset owners focuses on understanding the value and services that different resources will provide in a decarbonized electric grid. On the electrification team, he works with policymakers, regulators, and utilities to understand how our electricity and natural gas systems will transform under high levels of building and vehicle electrification. He has also enhanced E3's modeling capabilities by developing new tools for understanding the impacts of building electrification on peak electric loads and on natural gas revenue requirements and rates.

Ari enjoys managing and contributing to complex projects and appreciates the challenges of communicating technical concepts in an accessible manner. In addition to his other work, he has helped prepare expert witness testimony for regulatory commissions in California, Georgia, Minnesota, and Alberta. Dr. Gold-Parker's doctoral research, which was published in *Nature Communications* and the *Proceedings of the National Academy of Sciences*, developed and tested next-generation materials for solar cells. He holds a PhD in chemistry from Stanford University and a BA in chemistry and physics from Harvard University.

Notable E3 projects include:

- **California Public Utilities Commission Residential Energy Cost Calculator, 2020-2021.** To complement existing tools used in California's integrated resource planning (IRP) process, developed a Residential Energy Cost Calculator (RECC) to provide 10-year forecasts of energy bills and affordability metrics for representative households in California. The RECC includes forecasts of residential electricity and natural gas rates and gasoline prices under multiple scenarios. It enables comparison among different customers, illustrating how variations in climate zone, building type, electrification status, and other factors would impact residential energy costs.
- **Philadelphia Gas Works Business Diversification Model, 2020-2021.** In a project for the city of Philadelphia, considered business diversification options for the municipal gas utility Philadelphia Gas Works (PGW) that are consistent with the city's decarbonization goals. Developed a revenue requirement model for PGW that can also consider revenues from hypothetical future lines of business including heat pump installation and selling heat as a service.
- **Net-Zero New England: Ensuring Electric Reliability in a Low-Carbon Future, 2020.** Modeled the impacts of building electrification on peak electric loads under deep decarbonization scenarios in New England. Updated E3's RESHAPE model to consider a mix of technology options including different kinds of heat pump systems with fuel backup.

- **FortisAlberta Distribution System Inquiry, 2020.** Prepared expert witness testimony describing how today’s policies and rate structures will lead to inefficient DER procurement and dispatch as well as cost shifts. Developed a roadmap for the evolution of Alberta’s distribution system, recognizing that the timing of DER adoption will depend on numerous factors including the cost of DERs, the price of power, consumer preferences, and government policy.
- **South Carolina Dept. of Administration Bid Evaluation for Potential Sale of Santee Cooper, 2019-2020.** Performed due diligence of Santee Cooper’s rate setting methodology and proposed resource plan. Developed a dynamic dispatch model for Santee Cooper’s electric system, which fed into an economic revenue requirement and rate forecasting model for Santee Cooper’s electric utility business.
- **The Challenge of Retail Gas in California’s Low-Carbon Future, 2018-2019.** Modeled natural gas utility revenue requirements in scenarios consistent with California’s greenhouse gas reduction targets. Developed a model that illustrates how, as building electrification becomes more widespread, declines in gas throughput will impact rates and bills for a shrinking gas customer base. Identified gas system transition strategies that can help to mitigate customer bill impacts.
- **Development of E3’s RESHAPE model, 2018-19.** Developed E3’s RESHAPE model to simulate system-level load shapes for building electrification. RESAHPE combines data on buildings, historical weather, and a model of heat pump operation to forecast heating demands and simulate hourly electric loads from space and water heating.

Education

Stanford University	Palo Alto, CA
<i>Ph.D., Chemistry</i>	2018
<i>National Science Foundation Graduate Research Fellowship</i>	2014
<i>National Defense Science and Engineering Graduate Fellowship</i>	2014
Harvard University	Cambridge, MA
<i>B.A., Chemistry and Physics</i>	2012

Selected Publications

1. Energy and Environmental Economics and Energy Futures Initiative, “Net-Zero New England: Ensuring Electric Reliability in a Low-Carbon Future” (2020). https://www.ethree.com/wp-content/uploads/2020/11/E3-EFI_Report-New-England-Reliability-Under-Deep-Decarbonization_Full-Report_November_2020.pdf
2. Energy and Environmental Economics, “Literature Review of Economy-Wide Deep Decarbonization and Highly Renewable Energy Systems.” For the New York State Energy Research and Development Authority (2020). <https://climate.ny.gov/-/media/CLCPA/Files/2020-06-24-NYS-Decarbonization-Pathways-App-B.pdf>

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