Bill K. Wheatle, Ph.D.

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ENERGY AND ENVIRONMENTAL ECONOMICS, INC.

Boston, MA

Managing Consultant

Dr. Wheatle is based in E3's Boston office in the Climate Pathways practice area. He develops scenarios for economywide pathways to deep decarbonization and assesses the impact of building electrification on the natural gas system. He also evaluates the technoeconomics of novel generation and energy storage technologies. Dr. Wheatle studied battery materials as an undergraduate at Cornell University and as a doctoral student at the University of Texas at Austin.

Recent E3 projects include:

- Support of Docket 22-01-NG, Rhode Island Future of Natural Gas (2024).
 Supported PATHWAYS decarbonization scenario and electric load forecast development to investigate pathways to meet Rhode Island's net-zero economy-wide emissions target and the impact of that target on the state's regulated gas distribution system.
- Illinois Decarbonization Study: Climate and Equitable Jobs Act and Net Zero by 2050 (2022). Developed hydrogen cost projections for Illinois in conjunction with recent subsidies from the Inflation Reduction Act and estimated hourly and peak load projections for scenarios in which Illinois reaches net-zero emissions by 2050.
- Support of the 20-80 Docket, Massachusetts Local Distribution Companies (2021–2022). Developed PATHWAYS scenarios to examine the role of Massachusetts's Local Gas Distribution Companies (LDCs) in achieving the Commonwealth's goal of economywide Net-Zero emissions by 2050. Assessed the role of low-carbon fuels, such as hydrogen; electrification; energy efficiency; and novel technologies, such as networked geothermal.
- Zero-Carbon Generating Technology Review, California Public Utilities Commission (2021).
 Surveyed literature on emerging zero-carbon generators, including hydrogen-fired combustion turbines, natural gas plants with carbon capture and sequestration, the Allam cycle, and long-duration iron-air batteries. Evaluated technoeconomics and other considerations for integration into the bulk grid.
- Pathways to Decarbonization Multi-Sectoral Modeling, Omaha Public Power District (2021). Developed scenarios to meet an economywide net-zero emissions by 2050 target within OPPD's service using E3's PATHWAYS model. Using this model, outlined the benefits of various decarbonization strategies, including aggressive electrification or a high dependence on renewable fuels.

UNIVERSITY OF TEXAS AT AUSTIN

Graduate Research Assistant

Austin, TX August 2015 – April 2020

- Managed multiple simultaneous projects in a variety of technical areas, including molecular dynamic simulation studies of polymeric battery materials
- Implemented analyses in Fortran and Python to relate material properties to their performance in batteries

Education

University of Texas at Austin Ph.D., Chemical Engineering. Dissertation: Polymer Polarity as a Design Parameter for Polymer Electrolytes

Cornell University *B.S., Chemical Engineering.*

Ithaca, New York 2015

Austin, Texas

2020

Selected Publications

- B. K. Wheatle,* G. G. Rodriguez-Calero,* J. Hampton,* J. G. Werner, Y. Gu, U. Wiesner, H. D. Abruña. "Electrochemical Generation of Hexacyanoferrate and Hexacyanoruthenate Electroactive Films at Nickel Electrode Surfaces: A Promising Synthetic Approach for New Electrode Materials in Metal Ion Batteries and Supercapacitors." 871, 114284 (2020).
- B. K. Wheatle, N. A. Lynd, V. Ganesan. "The Effect of Host Incompatibility and Polarity Contrast on Ion Transport in Ternary Polymer-Polymer-Salt Blend Electrolytes." *Macromolecules*. 53 (3) 875– 884 (2020).
- B. K. Wheatle, E. F. Fuentes, N. A. Lynd, V. Ganesan. "Influence of Host Polarity on Correlating Salt Concentration, Molecular Weight, and Molar Conductivity in Polymer Electrolytes." ACS Macro Lett. 8, 888–892 (2019).
- B. K. Wheatle, N. A. Lynd, V. Ganesan. "Effect of Polymer Polarity on Ion Transport: A Competition between Ion Aggregation and Polymer Segmental Dynamics." ACS Macro Lett., 7 (10), 1149–1154 (2018).
- B. K. Wheatle, J. R. Keith, S. Mogurampelly, N. A. Lynd, V. Ganesan. "Influence of Dielectric Constant on Ionic Transport in Polyether-Based Electrolytes." ACS Macro Lett. 6 (12), 1362–1367 (2018).