Ellen Carlson, Associate II

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics, Inc., Cambridge, MA. *Associate II,* Apr 2026–Present; *Associate,* Apr 2024–Apr 2026; *Research Associate II,* Apr 2023–Apr 2024; *Research Associate I,* Jun 2022–Apr 2023

- Performs quantitative and qualitative research and analysis on energy sector issues including energy efficiency, the future of natural gas, and energy justice.
- Expertise in using geospatial tools and modeling in diverse applications, including developing Excel-based models to analyze building decarbonization pathways, including analysis of alternative fuels and electric peak impacts.

Cold Climate Housing Research Center, Fairbanks, AK. *Research Project Intern,* Aug 2021–May 2022

- Finalized the data management plan for research project evaluating the moisture resilience of walls with blown-in fiberglass insulation in rural Alaska.
- Prepared research project communication and outreach materials including conference presentation slides and community information

National Renewable Energy Laboratory, Fairbanks, AK. *Science Undergraduate Laboratory Internship Research Intern,* May 2021–Aug 2021

- Analyzed home assessment data to extract the median expected cost savings, carbon reduction, and energy use reduction for homeowners participating in the Thermalize Juneau residential clean energy campaign and compared them to energy modeling results.
- Conducted outreach phone calls to local homeowners to facilitate campaign participation and communication.

Research Experience for Undergraduates, University of Illinois at Urbana-Champaign. *Summer Research Intern, Gadway Lab,* May 2020–Aug 2020

- Conducted research remotely on the topology of synthetic mechanical metamaterials.
- Helped design a LabVIEW FPGA computer program for a remote, manipulable spring force for a single harmonic oscillator.

EDUCATION

Haverford College, Haverford, PA: B.S. in Physics, Growth and Structure of Cities, 2022
Senior Theses: *Comparative simulation of the thermal performance of Trombe wall systems for Alaskan homes; Cold, Rural, and Remote: Approaches to Achieving Energy Efficiency in Alaskan Communities*

SKILLS

Microsoft Office Suite, Excel, ArcGIS, EnergyPlus and OpenStudio.

PUBLICATIONS

Nguyen, T., W. Dejeanlouis, C. Resor, E. Carlson, P. Knight. 2026. *Customer and Utility Benefits of Energy Affordability Programs*. Synapse Energy Economics for the National Consumer Law Center.

Hopkins, A., A. Napoleon, S. deLeon, K. Takahashi, S. Schadler, E. Carlson. 2026. *Gas Distribution System Regulatory Handbook*. Synapse Energy Economics for the Future of Heat Initiative.

Takahashi, K., E. Carlson, A. Glaser Schoff, A. Fuzaylov, S. Shenstone-Harris, A. Hopkins, P. Knight. 2026. *Regional Electric Peak Load Forecasts for Maine: Implications of Electrification and ISO-NE CELT Forecasts*. Prepared for the Maine Office of the Public Advocate.

Knight, P., E. Carlson, I. Weiss, S. Chavin, A. Zeng. 2026. *Assessing Power Sector Impacts on Environmental Justice Communities.* Synapse Energy Economics for Alternatives for the Community and Environment.

Napoleon, A., S. Schadler, E. Carlson, A. Hopkins, S. deLeon, S. Koester, D. Karabakal. 2025. *The Geospatial Tool Gas Utilities Need for Future Gas Planning: Requirements and Next Steps for a Non-Pipeline Alternatives Analysis Tool*. Synapse Energy Economics for Natural Resources Defense Council.

Napoleon, A., C. Palmer, T. Nguyen, E. Carlson, A. Zeng. 2025. *Energy Affordability in Washington, DC*. Synapse Energy Economics for the Office of the People's Counsel for the District of Columbia.

Napoleon, A., I. Weiss, E. Carlson, T. Woolf, G. Ehrendreich, N. Newman, J. Michals. 2025. *Assessing the Distribution of Costs and Benefits of Energy Efficiency and Electric Vehicle Programs to Different Customers in Illinois*. Synapse Energy Economics and Midwest Energy Efficiency Alliance for E4theFuture.

Takahashi, K., A. Hopkins, P. Eash-Gates, E. Carlson, K. Schultz, E. Ashley. 2025. *Strategic Roadmap for Building Decarbonization - Policy, Regulatory, Workforce, and Equity Strategies for a Cleaner, Greener New Jersey.* Synapse Energy Economics and New Jersey agencies for the Governor's Office of Climate Action and the Green Economy.

Takahashi, K., A. S. Hopkins, E. Carlson, S. Schadler, S. Chavin. 2024. *Memo: Assessment of Electric Grid Headroom for Accommodating Building Electrification (Revised July 2024)*. Synapse Energy Economics to New Yorkers for Clean Power.

DeLeon, S., K. Takahashi, E. Carlson, A. S. Hopkins, S. Kwok, J. Litynski, C. Mattioda, L. Metz. 2024. *Minnesota Building Decarbonization Analysis: Equitable and cost-effective pathways toward net-zero emissions for homes and businesses.* Synapse Energy Economics for Clean Heat Minnesota.

Woolf, T., A. Napoleon, D. Goldberg, E. Carlson, C. Mattioda. 2023. *Distributed Equity Analysis for Energy Efficiency and Other Distributed Energy Resources.* Synapse Energy Economics for Lawrence Berkley National Lab and E4TheFuture.

Takahashi, K., E. Carlson, P. Eash-Gates, K. Schultz, P. Rhodes, A. S. Hopkins. 2023. *Building Decarbonization Strategies for the Southwest - Analysis of the costs and emissions reduction potential of space and water heating decarbonization*. Synapse Energy Economics for Western Resource Advocates.

Knight, P., O. Griot, J. Litynski, E. Carlson, J. Smith, A. Zeng, S. Kwok) and Climable.org (Stevenson-Zepeda, J., S. Kelly). 2023. *Massachusetts Technical Potential of Solar: An Analysis of Solar Potential and Siting Suitability in the Commonwealth*. Synapse Energy Economics and Climable.org for Massachusetts Department of Energy Resources.

Metz, L., M. Whited, P. Rhodes, E. Carlson. 2023. *Distribution System Investments to Enable Medium- and Heavy-Duty Vehicle Electrification.* Synapse Energy Economics for the Environmental Defense Fund.

Litynski, J., E. Carlson, P. Knight, J. Tabernero. 2023. *Gibbstown LNG Export Terminal: Lifecycle GHG Emissions Analysis.* Synapse Energy Economics for Delaware Riverkeeper Network.

Carlson, E., P. Eash-Gates, B. Fagan, A. Hopkins. 2023. *Review of Northwest Natural Gas 2022 Integrated Resource Plan—Final Report: Assessing Compliance with the Oregon IRP Guidelines and the Greenhouse Gas Reduction Requirements from the Climate Protection Program*. Synapse Energy Economics for Staff of Oregon Public Utilities Commission.

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