

Shelley Kwok, Associate

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc., Cambridge, MA. *Associate*, June 2021 – Present; *Research Associate*, August 2019 – June 2021.

- Conducts research and provides consulting on energy sector issues.
- Develops Excel-based spreadsheet models to conduct cash flow analyses and utility performance metrics assessments.
- Performs analysis using capacity expansion and dispatch models to support a wide array of projects.
- Assists in writing expert testimony and reports related to power plant economics and utility Integrated Resource Planning.
- Conducts analysis to evaluate energy efficiency programs and policies.
- Co-developer of Synapse's Building Decarbonization Calculator (BDC), a stock flow model to calculate the emissions and load impacts of heat pump adoption.

Tufts Department of Mechanical Engineering, Medford, MA. *Energy Research Fellow*, September 2018 - July 2019

- Utilized the SWITCH capacity expansion model to create optimized power systems projections.
- Incorporated national rooftop PV potential data from Google Project Sunroof into an energy model database.
- Modeled the electric sector to quantify the effects of installing residential solar at optimized rooftop orientations.
- Developed Python code to manipulate data and create data visualizations.

Integral Group, Oakland, CA. *Intern*, June 2018 – August 2018

- Collaborated with coworkers to design sustainable HVAC systems for Net-Zero Energy and LEED-certified buildings and performed engineering calculations to support building designs.
- Utilized EnergyPlus and OpenStudio to create energy models and provided recommendations for implementing energy efficiency measures.
- Modeled HVAC systems using Revit.

Renewable Energy and Applied Photonics Lab, Medford, MA. *Research Assistant*.

February 2017 – May 2017

- Refurbished thermal evaporators to be used for thin film plating on solar wafers.

EDUCATION

Tufts University, Medford, MA

Bachelor of Science in Mechanical Engineering, *Magna Cum Laude*, 2019.

SKILLS

Computer Software: EnCompass, Excel, Python, R, C++, MATLAB

PUBLICATIONS

Malone, E., D. Goldberg, S. Kwok, T. Woolf. 2022. *The Cape Light Compact's Low-Income Energy Efficiency Programs: Challenges and Opportunities*. Synapse Energy Economics for The Cape Light Compact.

Hopkins, A. S., A. Napoleon, S. Kwok. 2022. *Factsheet: Hydrogen & Low-Carbon Gases in New York's Electricity Future*. Synapse Energy Economics for Sierra Club.

Hopkins A. S., P. Eash-Gates, J. Frost, S. Kwok, J. Litynski, K. Takahashi. "Decarbonization of Buildings." In *San Diego Regional Decarbonization Framework*, edited by SDG Policy Initiative, School of Global Policy and Strategy, University of California San Diego. March 2022.

Glick, D., S. Kwok. 2021 *Review of Southwestern Public Service Company's 2021 IRP and Tolk Analysis*. Synapse Energy Economics for Sierra Club.

Frost, J. S. Kwok, K. Takahashi, A.S. Hopkins, A. Napoleon. 2021. *New York Heat Pump Trajectory Analysis*. Synapse Energy Economics for NRDC.

Eash-Gates, P., D. Glick, S. Kwok, J. Taberner, R. Wilson. 2021. *A Clean Energy Future for Tampa*. Synapse Energy Economics for Sierra Club.

Takahashi, K., T. Woolf, B. Havumaki, D. White, D. Goldberg, S. Kwok, A. Takasugi. 2021. *Missed Opportunities: The Impacts of Recent Policies on Energy Efficiency Programs in Midwestern States*. Synapse Energy Economics for the Midwest Energy Efficiency Alliance.

Kallay, J., S. Letendre, T. Woolf, B. Havumaki, S. Kwok, A. Hopkins, R. Broderick, R. Jeffers, K. Jones, M. DeMenno. 2021. *Application of a Standard Approach to Benefit-Cost Analysis for Electric Grid Resilience Investments*. Synapse Energy Economics for Sandia National Laboratories.

Hopkins, A., S. Kwok, A. Napoleon, C. Roberto, K. Takahashi. 2021. *Scoping a Future of Gas Study*. Synapse Energy Economics for Conservation Law Foundation.

Lane, C., S. Kwok, J. Hall, I. Addleton. 2021. *Macroeconomic Analysis of Clean Vehicle Policy Scenarios for Illinois*. Synapse Energy for the Natural Resources Defense Council.

Eash-Gates, P., K. Takahashi, D. Goldberg, A.S. Hopkins, S. Kwok. 2021. *Boston Building Emissions Performance Standard: Technical Methods Overview*. Synapse Energy Economics for the City of Boston.

Eash-Gates, P., D. Glick, S. Kwok, R. Wilson. 2020. *Orlando's Renewable Energy Future: The Path to 100 Percent Renewable Energy by 2020*. Synapse Energy Economics for the First 50 Coalition.

Takahashi, K., A. Hopkins, J. Rosenkrantz, D. White, S. Kwok, N. Garner. 2020. *Assessment of National Grid's Long-Term Capacity Report*. Synapse Energy Economics for the Eastern Environmental Law Center.

Allison, A., S. Kwok. 2020. *Comments on PacifiCorp's 2019 Integrated Resource Plan*. Synapse Energy Economics for the Sierra Club.

White, D., K. Takahashi, M. Whited, S. Kwok, D. Bhandari. 2019. *Memphis and Tennessee Valley Authority: Risk Analysis of Future TVA Rates for Memphis*. Synapse Energy Economics for Friends of the Earth.

Resume updated August 2022