Kenji Takahashi, Principal Associate

Synapse Energy Economics I 485 Massachusetts Avenue, Suite 3 I Cambridge, MA 02139 I 617-453-7038
ktakahashi@synapse-energy.com

PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc, Cambridge, MA. *Principal Associate,* Apr 2023–Present*; Senior Associate,* 2015–Apr 2023*; Associate*, 2004–2015

Analyzes technologies, policies, and regulations associated with supply- and demand-side energy resources. Assesses the performance, costs, and potential of energy efficiency measures, renewable energy resources, and building decarbonization and electrification measures. Examines economic and environmental implications of clean energy policies and programs associated with energy efficiency, demand response, distributed generation, and renewable energy. Analyzes ratemaking issues such as standby rates and time of use rates for distributed generation, and decoupling rate mechanisms for energy efficiency measures. Investigates electricity and natural gas market price trends and fluctuations. Prepares expert testimony and reports for regulatory proceedings.

Center for Energy and Environmental Policy, University of Delaware, Newark, DE. *Research Associate*, 2002–2004

Researched the market potential of distributed resources under different electric distribution rate designs (report prepared for Conectiv Power Delivery Company). Investigated the potential of the Clean Development Mechanisms (CDM) in Asian developing countries and the Japanese government's policy for CDM. Contributed to a market penetration study for photovoltaic technologies in comparison with the predicted oil production from the oil reservoirs in the Arctic National Wildlife Refuge (report prepared for Astropower, Inc.). Analyzed the installation of PV and generation-set options for the Assateague Beach Coastal Guard Station at the Assateague Island National Seashore in Maryland (report prepared for the U.S. National Park Service).

Delaware Division of Public Advocate, Wilmington, DE. *Research Intern*, 2003

Researched and wrote reports on states' policies regarding (1) energy efficiency/load management programs in order to identify cost-effective programs for implementation in Delaware; (2) electric standard offer service/default service (rate designs) for those who do not choose alternative suppliers under the deregulation process; (3) electric universal service and system benefit charges for protecting consumers from risks associated with electricity restructuring; and (4) Contributions and Advances-in-Aid-of-Construction for water supply extensions.

Resources for the Future, Washington DC. *Research Intern*, 2002

Investigated current and planned wind power capacity for the United States. Analyzed the EPA and EIA market models to estimate technical and economic potential of wind power in the United States.

Researched the status of renewable energy supply in Japan's electricity sector for the Economic and Social Research Institute, Cabinet Office, Government of Japan.

Citizens' Alliance for Saving the Atmosphere and the Earth (CASA), Osaka, Japan. *Volunteer and Researcher*, 1999–2001

Worked as a newsletter writer, editor, and event organizer. Wrote a report on the first experimental biomass energy facility in Japan and the photovoltaic system at Yagi Junior High School in Kyoto, Japan. Participated in a research project to investigate renewable energy potential and policies in Japan. Wrote a report on problems of nuclear power plants affecting communities in Fukui prefecture, Japan.

EDUCATION

University of Delaware, **Center for Energy and Environmental Policy, Joseph R. Biden, Jr School of Public Policy and Administration**, Newark, DE
Master of Arts in Urban Affairs and Public Policy with a focus on Energy and Environmental Policy, 2003. Master's thesis: *Policies to Support Distributed Resources under Different Electricity Restructuring Models*. Courses in energy economics, energy and environmental policy, electricity policy and planning, political economy of environment, solar electric technology, cost-benefit and decision-making analyses, and geographic information system.

Kansai University, Osaka, Japan
Bachelor of Arts in Law with a concentration in Public Administration, 2000

ADDITIONAL EDUCATION

Massachusetts Institute of Technology, Cambridge, MA
Professional Education Course: Sustainable Infrastructure Systems: Planning and Operations, 2022

AWARDS AND SCHOLARSHIPS

- Director's Citation, Joseph R. Biden, Jr School of Public Policy and Administration, University of Delaware. May 2003
- NEC scholarship for an environmental education leader-training program funded by one of the leading Japanese computer companies, NEC. Nov. 2000

ADDITIONAL SKILLS

Software: MS Office, Minitab, Analytica, IMPLAN, AVoided Emissions and geneRation Tool (AVERT), CO–Benefits Risk Assessment (COBRA), RETScreen, BEopt™, REM/Rate™
Language: Japanese, Spanish, and Cantonese

TESTIMONY

Washington Utilities and Transportation Commission (Dockets UE-260005 & UG-260006): Response Testimony of Kenji Takahashi in the matter of Puget Sound Energy's general rate case, addressing the Company's request to recover costs associated with the Seattle University Thermal Energy Network (TEN) pilot. On behalf of the Public Counsel Unit of the Washington State Office of the Attorney General. July 28, 2026.

Maryland Public Service Commission (Case No. 9707, Phase II): Rebuttal Testimony of Kenji Takahashi in the matter of the petition of the Office of People's Counsel for near-term, priority actions and comprehensive, long-term planning for Maryland's gas companies. On behalf of the Office of People's Counsel. July 13, 2026.

Maryland Public Service Commission (Case No. 9707, Phase II): Initial and Reply Testimony of Kenji Takahashi in the matter of the petition of the Office of People's Counsel for near-term, priority actions and comprehensive, long-term planning for Maryland's gas companies. On behalf of the Office of People's Counsel. May 4, 2026.

Colorado Public Utilities Commission (No. 25A-0044EG): Direct Testimony of Kenji Takahashi in the matter of the application of Public Service Company of Colorado for approval of the Mountain Energy Project and Associated Certificate of Public Convenience and Necessity (CPCN) for Supplemental Supply.

Maryland Public Service Commission (Case No.9702): Direct Testimony of Kenji Takahashi in the matter of the application of Potomac Electric Power Company for an Electric Multi-Year Plan for the distribution of electric energy. December 15, 2023.

New Mexico Public Regulation Commission (Case No. 22-00138-UT): Direct Testimony regarding Public Service Company of New Mexico's application for approve of its 2024 Electric Energy Efficiency Program Plan. On behalf of the Office of the Attorney General, September 18, 2023.

Maryland Public Service Commission (Case No.9692): Direct Testimony of Kenji Takahashi in the matter of the application of Baltimore Gas and Electric Company for an Electric and Gas Multi-Year Plan. On behalf of the Office of People's Counsel. June 20, 2023.

Maryland Public Service Commission (Case No.9692): Surrebuttal Testimony of Kenji Takahashi in the matter of the application of Baltimore Gas and Electric Company for an Electric and Gas Multi-Year Plan. On behalf of the Office of People's Counsel. August 25, 2023.

Maryland Public Service Commission (Case No.9702): Surrebuttal Testimony of Kenji Takahashi in the matter of the application of Potomac Electric Power Company for an Electric Multi-Year Plan for the distribution of electric energy. February 23, 2023.

New Mexico Public Regulation Commission (Case No. 22-00232-UT): Direct Testimony regarding New Mexico Gas Company's application for approve of its 23023-2025 Energy Efficiency Program. On behalf of the Office of the Attorney General, November 2022.

Nova Scotia Utility and Review Board (M10473): Evidence of Alice Napoleon and Kenji Takahashi regarding EfficiencyOne's 2023-2025 DSM Resource Plan, with a focus on the Settlement Plan. On behalf of Counsel to Nova Scotia Utility and Review Board, May 2022.

Pennsylvania Public Utility Commission (Docket No. M-2020-3020824): Revised Direct Testimony of Alice Napoleon and Kenji Takahashi regarding PPL Electric Utilities' proposed Act 129 Phase IV Energy Efficiency and Conservation. On behalf of the Natural Resources Defense Council. January 19, 2021.

New York Public Service Commission (Cases 20-E-0380 and 20-G-0381): Direct testimony of Alice Napoleon and Kenji Takahashi regarding proposed earnings adjustment mechanisms in a proceeding on Rates, Charges, Rules, and Regulations related to Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service and National Grid for Gas Service. On behalf of the Natural Resources Defense Council. November 25, 2020.

Massachusetts Department of Public Utilities (D.P.U. 16-103): Direct testimony regarding Berkshire Gas Company's Forecast and Supply Plan. On behalf of the Town of Montague. March 8, 2017.

Ontario Energy Board (EB-2015-0049 and EB-2015-0029): Testimony on *Ontario Gas Demand-Side Management 2016-2020 Plan Review,* expert report on Enbridge Gas Distribution Inc.'s and Union Gas Limited's proposed gas DSM plans. On behalf of the Ontario Energy Board. September 2-3, 2015.

New Jersey Board of Public Utilities (Docket No. EO14080897): Direct testimony regarding Public Service Electric and Gas Company's petition to continue its Energy Efficiency Economic Extension program. On behalf of the New Jersey Division of Rate Counsel. November 7, 2014.

TESTIMONY ASSISTANCE

Michigan Public Service Commission (Case No. U-21806): Direct Testimony of Alice Napoleon in the matter of the Application of Consumers Energy Company for authority to increase its rates for the distribution of natural gas and for other relief. Synapse Energy Economics for Michigan Environmental Council and Sierra Club. April 23, 2025.

Public Service Commission of South Carolina (Docket No. 2016-223-E): Direct Testimony of Alice Napoleon regarding South Carolina Electric and Gas Energy Efficiency Efforts. On behalf of South Carolina Coastal Conservation League. September 1, 2016.

Maine Public Utilities Commission (Docket No. 2015-00175): Direct testimony of Tim Woolf on Efficiency Maine Trust's petition for approval of the Triennial Plan for Fiscal Years 2017-2019. On behalf of the Natural Resources Council of Maine and the Conservation Law Foundation. February 17, 2016.

Missouri Public Service Commission (File No. EO-2015-0055): Rebuttal and surrebuttal testimony of Tim Woolf on the topic of Ameren Missouri's 2016-2018 Energy Efficiency Plan. On behalf of Sierra Club. March 20, 2015 and April 27, 2015.

Florida Public Service Commission (Docket No. 130199-EI – No. 130205-EI): Testimony of Tim Woolf regarding setting goals for increasing the efficiency of energy consumption and increasing the development of demand-side renewable energy systems in Florida utilities. On behalf of Sierra Club. May 19, 2014.

Colorado Public Utilities Commission (Docket No. 13A-0686EG): Testimony of Tim Woolf regarding setting energy efficiency goals for the Public Service Company of Colorado's demand-side management plan. On behalf of Sierra Club. October 16, 2013.

Kentucky Public Service Commission (Case No. 2012-00578): Testimony of Tim Woolf regarding Kentucky Power Company's economics analysis of the proposed purchase of the Mitchell Generating Station. On behalf of Sierra Club. April 1, 2013.

State of New Jersey Board of Public Utilities (Docket No. GO11070399): Testimony of Robert Fagan regarding Elizabethtown Gas Company's Proposed Energy Efficiency Program. On behalf of New Jersey Division of the Ratepayer Advocate. December 16, 2011.

State of New Jersey Board of Public Utilities (Docket No. GR10030225): Testimony of David Nichols before the New Jersey Natural Gas Company's Proposed Energy Efficiency Program. On behalf of New Jersey Division of the Ratepayer Advocate. July 9, 2010.

Pennsylvania Public Utility Commission (Docket Nos. R-2009-2139884 and P-2009-2097639): Testimony of David Nichols regarding Philadelphia Gas Works' Proposed Energy Efficiency Plan. On behalf of Pennsylvania Office of Consumer Advocate. March 26, 2010.

Florida Public Service Commission (Docket NO. 080407-EG et al.): Testimony of William Steinhurst regarding Florida Demand Side Management Policy and Planning. On behalf of Natural Resources Defense Council (NRDC) and Southern Alliance for Clean Energy. July 6, 2009.

Iowa Utilities Board (Docket No. EEP-08-01): Testimony of Chris James regarding Interstate Power and Light Company's Proposed Energy Efficiency Program. On behalf of Community Coalition and Plains Justice. August 29, 2008.

Nova Scotia Utility and Review Board (Case No. M00208): Testimony of Bruce Biewald and David Nichols regarding Nova Scotia Power Inc's Demand Side Management Plan. Oh behalf of The Utility and Review Board Staff f. March 17, 2008.

Public Utilities Commission of Nevada (Docket No. 06-06051): Testimony of Tim Woolf regarding the review of the Nevada Power Company's Demand Side Management Plan in the 2006 Integrated Resource Plan. On behalf of Nevada Bureau of Consumer Protection. September 13, 2006.

Public Utilities Commission of California (Application A.04-06-024): Testimony of Amy Roschelle regarding the review of Pacific Gas and Electric's Application to Establish a Demonstration Climate Protection Program and Tariff Option. On behalf of The Utility Reform Network (TURN). May 5, 2006.

Public Service Commission of Nevada (Docket No. 05-10021): Testimony of Tim Woolf regarding the Sierra Pacific Power Company's Gas Demand-Side Management Plan. On behalf of Nevada Bureau of Consumer Protection. February 22, 2006.

PUBLICATIONS

Takahashi, K., T. Gyalmo, A. Hopkins. 2026. *Refrigerant Emissions Impacts of Residential Building Electrification in the Northeast and Mid-Atlantic: Quantifying Leakage, Emissions Impacts, and the Role*

of Refrigerant Transitions. Synapse Energy Economics for Northeast States for Coordinated Air Use Management (NESCAUM).

Hopkins, A. S., 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., 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.

Shenstone-Harris, S., M. Whited, K. Takahashi, S. Schadler, A. Fuzaylov, I. Weiss. 2025. *How Will Future Electric Vehicle Adoption and Building Electrification Affect Electric Rates?* New Jersey Factsheet. Synapse Energy Economics for Natural Resources Defense Council.

Shenstone-Harris, S., M. Whited, K. Takahashi, S. Schadler, A. Fuzaylov, I. Weiss. 2025. *How Will Future Electric Vehicle Adoption and Building Electrification Affect Electric Rates?* New Mexico Factsheet. Synapse Energy Economics for Natural Resources Defense Council.

Takahashi, K., A. Glaser Schoff, B. Havumaki. 2024. *Evidence Regarding Nova Scotia Power's 2024 Load Forecast*. Synapse Energy Economics for Nova Scotia Utility and Review Board.

Napoleon, A., T. Nguyen, S. Schadler, S. deLeon, K. Takahashi. 2024. *Comments of Environmental Defense Fund, Natural Resources Defense Council, Sierra Club, Earthjustice, and Alliance for a Green Economy on Non-Pipes Alternative Framework Questions.* Synapse Energy Economics for Natural Resources Defense Council.

Takahashi, K., C. Lane, M. Whited, S. Schadler, T. Gyalmo, A. Zeng, A. S. Hopkins. 2024. *Charging Minnesota's Electric Vehicles; Strategies that Work for the Electric Grid and Consumers.* Synapse Energy Economics for Minnesota Department of Commerce, Division of Energy Resources.

Kallay, J., A. Napoleon, E. Ashley, K. Takahashi, T. Woolf. 2024. *Review of New Brunswick Power's 2024/25 to 2026/27 DSM Program Initiatives Update.* Synapse Energy Economics for the New Brunswick Energy and Utilities Board Staff.

Biewald, B., D. Glick, S. Kwok, K. Takahashi, J. Carvallo, L. Schwartz. 2024. *Best Practices in Integrated Resource Planning: A guide for planners developing the electricity resource mix of the future.* Synapse Energy Economics and Lawrence Berkeley National Laboratory for The Energy Foundation.

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.

Takahashi, K. 2024. *Memo: OPC's Comments to EAG Work Group in response to GTI Energy's EHP vs GHP Methodology for Washington Gas Maryland Gas Heat Pump Pilot.* Synapse Energy Economics for Maryland Office of the People's Counsel.

District of Columbia Department of Energy and Environment Energy Administration. 2023. *The Strategic Electrification Roadmap for Buildings and Transportation in the District of Columbia*. Prepared for the Office of Energy Efficiency and Renewable Energy U.S. Department of Energy with Synapse Energy Economics as Technical Contributor.

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.

Takahashi, K. 2023. *Memo: Comment on WGL's Response to OPC's February Comments on WGL's Gas Heat Pump Assessment.* Synapse Energy Economics for Maryland Office of the People's Counsel.

Hopkins, A. S., A. Napoleon, J. Litynski, K. Takahashi, J. Frost, S. Kwok. 2022. *Climate Policy for Maryland's Gas Utilities: Financial Implications*. Synapse Energy Economics for Maryland Office of the People's Counsel.

Kwok, S., K. Takahashi, J. Litynski, A. S. Hopkins. 2022. Memo: Massachusetts DPU Docket-2080: Proposed "Common Regulatory Framework." Synapse Energy Economics for Conservation Law Foundation.

Hopkins, A. S. S. Kwok, J. Litynski, A. Napoleon, K. Takahashi. 2022. Memo: Evaluation of Draft Consultant Reports in Massachusetts DPU Docket 20-80. Synapse Energy Economics for Conservation Law Foundation.

Takahashi, K., S. Kwok, J. Tabernero, F. Frost. 2022. *Toward Net Zero Emissions from Oregon Buildings*. Synapse Energy Economics for Sierra Club.

Takahashi, K., T. Woolf, B. Havumaki, D. White, D. Goldberg, S. Kwok, A. Takasugi. 2022. *Missed Opportunities - The Impacts of Recent Policies on Energy Efficiency Programs in Midwestern States.* Presented at the 2022 ACEEE Summer Study of Energy Efficiency in Buildings.

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.

Douglas, A., J. Kallay, S. Singh Walker, A. Hopkins, A. Napoleon, & K. Takahashi. 2022. Future Proofing the Texas Grid with Distributed Energy Resources. Synapse Energy Economics for Texas Advanced Energy Business Alliance.

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

Hopkins, A. S., A. Napoleon, K. Takahashi. 2021. *A Framework for Long-Term Gas Utility Planning in Colorado*. Synapse Energy Economics for the Colorado Energy Office.

Hopkins, A. S., A. Napoleon, T. Woolf, K. Takahashi. 2021. *Long-Term Planning to Support the Transition of New York's Gas Utility Industry*. Synapse Energy Economics for Natural Resources Defense Council.

Kallay, J., A. Napoleon, K. Takahashi, E. Sinclair, T. Woolf. 2021. *Opportunities for Evergy Kansas to Address Energy Equity Within its Integrated Resource Plan and Other Planning Processes*. Synapse Energy Economics for Union of Concerned Scientists.

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.

Takahashi, K., E. Sinclair, A. Napoleon, A.S. Hopkins, D. Goldberg. 2021. *Evaluation of EnergyWise Low-Income Energy Efficiency Program in Mississippi – Program Performance, Design, and Implications for Low-Income Efficiency Programs*. Synapse Energy Economics for Sierra Club and Gulf Coast Community Foundation.

Wilson, R., I. Addleton, K. Takahashi, J. Litynski. 2021. *Clean, Affordable, and Reliable – A Plan for Duke Energy's Future in the Carolinas*. Synapse Energy Economics for North Carolina Sustainable Energy Association, Carolinas Clean Energy Business Alliance, Southern Alliance for Clean Energy, Natural Resources Defense Council and the Sierra Club.

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.

Shipley, J., Hopkins, A., Takahashi, K., & Farnsworth, D. 2021. *Renovating regulation to electrify buildings: A guide for the handy regulator*. Regulatory Assistance Project.

Malone, E., K. Takahashi, A. Hopkins, T. Woolf, and C. Lane. 2020. *New Hampshire Rate, Bill, and Participation Impact Analysis: A User's Guide to the RBP Models.* Synapse Energy Economics for the New Hampshire Evaluation, Measurement, and Verification Working Group.

Goldberg, D., J. Frost, D. Hurley, K. Takahashi. 2020. *New England Electrification Load Forecast*. Synapse Energy Economics for E4TheFuture.

Camacho, J., K. Takahashi, A. S. Hopkins, D. White. 2020. *Assessment of Proposed Energize Eastside Project*. Synapse Energy Economics and MaxETA Energy for the City of Newcastle, WA.

Lane, C., K. Takahashi. 2020. *Rate and Bill Impact Analysis of Rhode Island Natural Gas Energy Efficiency Programs*. Synapse Energy Economics for National Grid.

Takahashi, K., A. S. Hopkins, D. White, S. Kwok, N. Garner. 2020. *Assessment of National Grid's Long-Term Capacity Report – Natural gas capacity needs and alternatives*. Synapse Energy Economics for the Eastern Environmental Law Center.

Takahashi, K., J. Frost, D. Goldberg, A. S. Hopkins, K. Nishio, K. Nakano. 2020. *Survey of U.S. State and Local Building Decarbonization Policies and Programs.* Presented at the 2020 ACEEE Summer Study of Energy Efficiency in Buildings.

Hopkins, A. S., A. Napoleon, K. Takahashi. 2020. *Gas Regulation for a Decarbonized New York: Recommendations for Updating New York Gas Utility Regulation.* Synapse Energy Economics for Natural Resources Defense Council.

Takahashi, K., A. Napoleon. 2020. *Synapse Comments on EfficiencyOne Performance Alignment Study - M09096.* Questions and comments regarding the EfficiencyOne Performance Alignment Study filed on April 21, 2020. Synapse Energy Economics for the Nova Scotia Utility and Review Board.

Napoleon, A., J. Kallay, K. Takahashi. 2020. *Utility Energy Efficiency and Building Electrification Portfolios Through 2025: A Brief on the New York Public Service Commission's Recent Order.* Synapse Energy Economics for the Natural Resources Defense Council.

Hopkins, A. S., K. Takahashi, Nadel, S. 2020. "Keep warm and carry on: Electrification and efficiency meet the 'polar vortex'." Proceedings of the 2020 ACEEE Summer Study of Energy Efficiency in Buildings.

Kallay, J., A. Hopkins, J. Frost, A. Napoleon, K. Takahashi, J. Slason, G. Freeman, D. Grover, B. Swanson. 2019. *Net Zero Energy Roadmap for the City of Burlington, Vermont.* Synapse Energy Economics and Resource Systems Group for Burlington Electric Department.

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.

Napoleon, A., T. Woolf, K. Takahashi, J. Kallay, B. Havumaki. 2019. *Comments in the New York Public Service Commission Case 18-M-0084: In the Matter of a Comprehensive Energy Efficiency Initiative.* Comments related to NY Utilities report regarding energy efficiency budgets and targets, collaboration, heat pump technology, and low- and moderate-income customers and requests for approval. Synapse Energy Economics on behalf of Natural Resources Defense Council.

Havumaki, B., J. Kallay, K. Takahashi, T. Woolf. 2019. *All-Electric Solid Oxide Fuel Cells as an Energy Efficiency Measure.* Synapse Energy Economics for Bloom Energy.

Takahashi, K., B. Havumaki, J. Kallay, T. Woolf. 2019. *Bloom Fuel Cells: A Cost-Effectiveness Brief.* Synapse Energy Economics for Bloom Energy.

Camp, E., B. Fagan, J. Frost, D. Glick, A. Hopkins, A. Napoleon, N. Peluso, K. Takahashi, D. White, R. Wilson, T. Woolf. (2019). *Phase 2 Report on Muskrat Falls Project Rate Mitigation: Newfoundland and Labrador Hydro Rate Mitigation Approaches: Options for Cost Savings and Revenue Opportunities through Export Market Sales, Energy Efficiency, In-Province Electrification and Rate Design Approaches After In-Service of the Muskrat Falls Project*. Synapse Energy Economics for Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Napoleon, A., D. Goldberg, K. Takahashi, T. Woolf. 2019. *An Assessment of Prince Edward Island Energy Corporations' 2018 - 2021 Energy Efficiency and Conservation Plan.* Synapse Energy Economics for Carr, Stevenson and MacKay as Counsel to the Island Regulatory and Appeals Commission.

Camp, E., B. Fagan, J. Frost, D. Glick, A. Hopkins, A. Napoleon, N. Peluso, K. Takahashi, D. White, R. Wilson, T. Woolf. 2018. *Phase 1 Findings on Muskrat Falls Project Rate Mitigation.* Synapse Energy Economics for Board of Commissioners of Public Utilities, Province of Newfoundland and Labrador.

Hopkins, A. S., K. Takahashi, D. Glick, M. Whited. 2018. *Decarbonization of Heating Energy Use in California Buildings: Technology, Markets, Impacts, and Policy Solutions*. Synapse Energy Economics for the Natural Resources Defense Council.

Hopkins, A. S., K. Takahashi, L. David. 2018. *Challenges and Opportunities for Deep Decarbonization through Strategic Electrification under the Utility Regulatory Structures of the Northeast*. Proceedings of the 2018 ACEEE Summer Study on Energy Efficiency in Buildings, August 12, 2018.

Hall, J., J. Kallay, A. Napoleon, K. Takahashi, M. Whited. *Locational and Temporal Value of Energy Efficiency and other DERs to Transmission and Distribution Systems*. Proceedings of the 2018 ACEEE Summer Study on Energy Efficiency in Buildings, August 12, 2018.

White, D., K. Takahashi, A. Napoleon, T. Woolf. 2018. *Value of Energy Efficiency in New York: Assessment of the Range of Benefits of Energy Efficiency Programs*. Synapse Energy Economics for Natural Resources Defense Council.

Woolf, T., A. Hopkins, M. Whited, K. Takahashi, A. Napoleon. 2018. *Review of New Brunswick Power's 2018/2019 Rate Case Application.* In the Matter of the New Brunswick Power Corporation and Section 103(1) of the Electricity Act Matter No. 375. Synapse Energy Economics for the New Brunswick Energy and Utilities Board Staff.

Hopkins, A. S., K. Takahashi. 2017. *Alternatives to Building a New Mt. Vernon Substation in Washington, DC*. Synapse Energy Economics for the District of Columbia Department of Energy and Environment.

Hopkins, A.S., A. Horowitz, P. Knight, K. Takahashi, T. Comings, P. Kreycik, N. Veilleux, J. Koo. 2017. *Northeast Regional Assessment of Strategic Electrification.* Synapse Energy Economics and Meister Consulting Group for the Northeast Energy Efficiency Partnerships.

Takahashi, K., A. Allison, D. White. 2017. *Renewable Heating and Cooling Policy Framework: Options to Advance Industry Growth and Markets in New York*. Prepared for the New York State Energy Research and Development Authority.

Sierra Club. 2017. *Sierra Club Comments on Portland General Electric Company 2016 Integrated Resource Plan*. Submitted to the Public Utility Commission of Oregon, January 24, 2017.

Cook, R., J. Koo, N. Veilleux, K. Takahashi, E. Malone, T. Comings, A. Allison, F. Barclay, L. Beer. 2017. *Rhode Island Renewable Thermal Market Development Strategy*. Meister Consultants Group and Synapse Energy Economics for Rhode Island Office of Energy Resources.

Takahashi, K, T. Woolf, J. Kallay, E. Malone, A. Napoleon, M. Whited. 2016. *Starting Energy Efficiency Off on the Right Foot–Regulatory Policies to Support Successful Program Planning and Design.* Synapse Energy Economics for Prince Edward Island Regulatory & Appeals Commission.

Woolf, T., M. Whited, P. Knight, T. Vitolo, K. Takahashi. 2016. *Show Me the Numbers: A Framework for Balanced Distributed Solar Policies*. Synapse Energy Economics for Consumers Union.

Fisher, J., P. Luckow, A. Horowitz, T. Comings, A. Allison, E.A. Stanton, S. Jackson, K. Takahashi. 2016. *Michigan Compliance Assessment for the Clean Power Plan: MPSC/MDEQ EPA 111(d) Impact Analysis*. Prepared for Michigan Public Service Commission, Michigan Department of Environmental Quality, and Michigan Agency for Energy.

Woolf, T., A. Napoleon, P. Luckow, W. Ong, K. Takahashi. 2016. *Aiming Higher: Realizing the Full Potential of Cost-Effective Energy Efficiency in New York.* Synapse Energy Economics for Natural Resources Defense Council, E4TheFuture, CLEAResult, Lime Energy, Association for Energy Affordability, and Alliance for Clean Energy New York.

Napoleon, A., K. Takahashi, J. Kallay, T. Woolf. 2016. "Evaluation, Measurement, and Verification in Virginia." Synapse Energy Economics for Clean Energy Solutions Inc., Virginia Energy Efficiency Council, and Virginia Department of Mines, Minerals and Energy.

Stanton, E. A., P. Knight, A. Allison, T. Comings, A. Horowitz, W. Ong, N. R. Santen, K. Takahashi. 2016. *The RGGI Opportunity 2.0: RGGI as the Electric Sector Compliance Tool to Achieve 2030 State Climate Targets.* Synapse Energy Economics for Sierra Club, Pace Energy and Climate Center, and Chesapeake Climate Action Network.

Stanton, E. A., P. Knight, A. Allison, T. Comings, A. Horowitz, W. Ong, N. R. Santen, K. Takahashi. 2016. *The RGGI Opportunity: RGGI as the Electric Sector Compliance Tool to Achieve 2030 State Climate Targets.* Synapse Energy Economics for Sierra Club, Pace Energy and Climate Center, and Chesapeake Climate Action Network.

Kallay, J., K. Takahashi, A. Napoleon, T. Woolf. 2015. *Fair, Abundant, and Low-Cost: A Handbook for Using Energy Efficiency in Clean Power Plan Compliance.* Synapse Energy Economics for the Energy Foundation.

Woolf, T., K. Takahashi, E. Malone, A. Napoleon, J. Kallay. 2015. *Ontario Gas Demand-Side Management 2016-2020 Plan Review.* Synapse Energy Economics for the Ontario Energy Board.

Biewald, B., J. Daniel, J. Fisher, P. Luckow, A. Napoleon, N. R. Santen, K. Takahashi. 2015. *Air Emissions Displacement by Energy Efficiency and Renewable Energy.* Synapse Energy Economics.

Takahashi, K. 2015. "Boost Appliance Efficiency Standards." Ed. John Shenot. In *Implementing EPA's Clean Power Plan: A Menu of Options.* National Associate of Clean Air Agencies.

Takahashi, K., A. Napoleon. 2015. "Pursue Behavioral Efficiency Programs." Ed. John Shenot. In *Implementing EPA's Clean Power Plan: A Menu of Options.* National Associate of Clean Air Agencies.

Takahashi, K., J. Fisher, T. Vitolo, N. R. Santen. 2015. *Review of TVA's Draft 2015 Integrated Resource Plan*. Synapse Energy Economics for Sierra Club.

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support from Stratus Consulting, Synapse Energy Economics, Summit Blue, Energy and Environmental Economics, Inc., Demand Research LLC, Abt Associates, Inc., and ICF International.

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James, C., J. Fisher, K. Takahashi, B. Warfield. 2009. *No Need to Wait: Using Energy Efficiency and Offsets to Meet Early Electric Sector Greenhouse Gas Targets*. Synapse Energy Economics for Environmental Defense Fund.

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Hornby, R., C. James, K. Takahashi, D. White. 2008. *Increasing Demand Response in Maine.* Synapse Energy Economics for the Maine Public Utilities Commission.

Hausman, E., R. Fagan, D. White, K. Takahashi, A. Napoleon. 2007. *LMP Electricity Markets: Market Operations, Market Power, and Value for Consumer.* Synapse Energy Economics for the American Public Power Association.

Zalcman, F., K. Takahashi, G. Keith, W. Steinhurst. 2006. *A Comprehensive Process Evaluation of Early Experience under New York's Pilot Program for Integration of Distributed Generation in Utility System Planning.* Synapse Energy Economics and Pace Law School Energy Project for New York State Energy Research and Development Authority (NYSERDA).

Chernick, P., J. Wallach, W. Steinhurst, T. Woolf, A. Sommer, and K. Takahashi. 2006. *Integrated Portfolio Management in a Restructured Supply Market*. Resource Insight, Inc. and Synapse Energy Economics for Ohio Consumers' Counsel.

Steinhurst, W., A. Napoleon, K. Takahashi. 2006. *Energy in the Northern Forest Region: A Situation Analysis*. Synapse Energy Economics for Northern Forest Center and The North Country Council.

Synapse Energy Economics. *Ensuring Delaware's Energy Future: A Response to Executive Order Number 82*. Technical assistance for Delaware Cabinet Committee on Energy.

Hausman, E., K. Takahashi, D. Schlissel, B. Biewald. 2006. *The Proposed Broadwater LNG Import Terminal - An Analysis and Assessment of Alternatives*. Prepared for Connecticut Fund for the Environment and Save the Sound.

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Hausman, E., K. Takahashi, B. Biewald. 2006. *The Deerfield Wind Project: Assessment of the Need for Power and the Economic and Environmental Attributes of the Project*. Synapse Energy Economics for Deerfield Wind, LLC.

Fagan, R., A. Napoleon, A. Rochelle, A. Sommer, W. Steinhurst, D. White, K. Takahashi. 2006. *Mohave Alternatives and Complements Study: Assessment of Carbon Sequestration Feasibility and Markets.* Sargent & Lundy and Synapse Energy Economics, Inc. for Southern California Edison.

Johnston, L., K. Takahashi, F. Weston, and C. Murray. 2005. *Rate Structures for Customers with Onsite Generation: Practice and Innovation*. Synapse Energy Economics and Regulatory Assistance Projects for National Renewable Energy Laboratory.

Woolf, T., K. Takahashi, G. Keith, A. Rochelle, P. Lyons. 2005. *Feasibility Study of Alternative Energy and Advanced Energy Efficiency Technologies for Low-Income Housing in Massachusetts*. Synapse Energy Economics for Low-Income Energy Affordability Network (LEAN) and Action for Boston Community Development, and Action Inc.

Steinhurst, W., R. McIntyre, B. Biewald, C. Chen, K. Takahashi. 2005. *Economic Impacts and Potential Air Emission Reductions from Renewable Generation & Efficiency Programs in New England.* Prepared for Regulatory Assistance Project.

Keith. G., B. Biewald, K. Takahashi. 2004. *The Searsburg/Readsboro Wind Project: An Analysis of Project Economics and an Analysis of Need*. Synapse Energy Economics for enXco Inc.

Takahashi, K. 2003. "The Clean Development Mechanism and Energy Efficiency Upgrades in Developing Countries: The Case of the Residential Sector in Selected Asian Countries." Proceedings of the 3rd International Conference on Energy Efficiency in Domestic Appliances and Lighting, October 1-3, 2003.

PRESENTATIONS

Hopkins, A. S., S. Kwok, A. Napoleon, K. Schultz, K. Takahashi. "Massachusetts Clean Heat Standard: Policy and Regulatory Analysis" presented with Conservation Law Foundation, February 2023.

Takahashi, K. 2022. "Toward Net Zero Emissions from Oregon Buildings – Emissions and Cost Analysis of Efficient Electrification," presentation at LBNL Webinar: End-Use Load Profiles for the U.S. Building Stock: Data Access and Use Cases, December 2022.

Takahashi, K. 2022. "Missed Opportunities - Impacts of Recent Policies on Energy Efficiency Programs in Midwestern States" Presentation at the ACEEE 2022 Summer Study on Energy Efficiency in Buildings, August 24, 2022.

Shipley, J., Hopkins, A., Takahashi, K., & Farnsworth, D. “Renovating regulation to electrify buildings: A guide for the handy regulator,” presented with Regulatory Assistance Project, January 2021.

Takahashi, K. 2019. “Non-Wires Alternatives to Building a New Substation in Washington, D.C. – Key Takeaways for Other Jurisdictions” Presentation at the ACEEE 2019 National Conference on Energy Efficiency as a Resource, October 16, 2019

Titus, E., K. Takahashi. 2019. “Strategic Electrification: What does the promised land of information look like?” Presentation at the AESP 2019 Conference, January 24, 2019.

Hopkins, A., K. Takahashi. 2019. “What's Available and What's Needed for Strategic Electrification Planning and Forecasting in the Northeast Slides” Presentation on behalf of the Northeast Energy Efficiency Partnerships, September 20, 2018.

Hall, J., J. Kallay, A. Napoleon, K. Takahashi, M. Whited. 2018. “Locational and Temporal Values of Energy Efficiency and other DERs to T&D Systems.” Presentation at the 2018 ACEEE Summer Study on Energy Efficiency in Buildings, August 15, 2008.

Hopkins. A., K. Takahashi, D. Lis. 2018. Deep Decarbonization through Strategic Electrification in the Northeast. Presentation at the 2018 ACEEE Summer Study on Energy Efficiency in Buildings, August 13, 2008.

Takahashi, K. 2017. “Using Demand-Side Resources to End a Moratorium on New Customers for a Local Natural Gas Company in Massachusetts.” Presentation at the ACEEE 2017 National Conference on Energy Efficiency as a Resource, October 31, 2017.

Takahashi, K., R. Cook, T. Comings, A. Allison, E. Malone. 2017. *Rhode Island Renewable Thermal Market Development Strategy – An Analysis of Energy, Environmental, Economic, Energy Bill, and Local Job Impacts of an Alternative Renewable Thermal Energy Future for Rhode Island*. Synapse Energy Economics and Meister Consultants Group. Paper presented by K. Takahashi at the 9th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL), September 15, 2017.

Napoleon, A., K. Takahashi. 2016. “Assessing Strategic Energy Management Cost Effectiveness.” Presentation at NEEP Northeast Strategic Management Collaborative Workshop, November 15, 2016.

Takahashi, K. 2016. “Progress and Prospect of U.S. Electricity Policies.” Presentation at the Citizen's Alliance for Saving the Atmosphere and the Earth (CASA) seminar in Osaka, Japan on July 5, 2016.

Takahashi, K. and J. Kallay. 2015. “Energy Efficiency and the Clean Power Plan.” Webinar presentation on December 15, 2015.

Takahashi, K. 2015. “Searching for Best Practices for Modeling Energy Efficiency in Integrated Resource Planning.” Presentation at the 2015 ACEEE National Conference on Energy Efficiency as a Resource, September 21, 2015.

Takahashi, K. 2014. “Expected U.S. Climate and Environmental Policy: The Future of Coal Power and Clean Energy.” Presentation at the Citizen's Alliance for Saving the Atmosphere and the Earth (CASA) seminar in Osaka, Japan on July 10, 2014.

Takahashi, K. and J. Fisher. 2013. “Greening TVA: Leveraging Energy Efficiency to Replace TVA’s Highly Uneconomic Coal Units.” Presentation at the 2013 ACEEE National Conference on Energy Efficiency as a Resource, September 23, 2013.

Takahashi, K. 2013. “Economic and Environmental Analysis of Residential Heating and Cooling Systems: A Study of Heat Pump Performance in U.S. Cities.” Presentation at the 7th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL’13), September 12, 2013.

Takahashi K. 2011. “Jiyuka-dakedenai-america-no-denryokuseisaku-no-saishin-doukou (Recent Trends in U.S. Electric Power Regulation and Policy).” Presentation at CASA and Hinodeya Eco-life Research Institute in Osaka, Japan Workshop to discuss (1) US electricity regulation, (2) the impact of the Fukushima nuclear event on the US nuclear power industry, and (3) energy efficiency policies and programs in the US, November 21, 2011.

Takahashi, K. 2010. “Review of Utility-Owned Distributed Generation Models for New York.” Presentation at the Northeast CHP Initiative Meeting, April 13, 2010.

Takahashi, K. and D. Nichols. 2009. “The Costs of Increasing Electricity Savings through Utility Efficiency Programs: Evidence from US Experience.” Presentation at the 5th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL’09), June 24, 2009.

Takahashi, K. 2008. “The Sustainability and Costs of Increasing Efficiency Impacts: Evidence from Experience to Date.” Presentation at the 2008 ACEEE Summer Study on Energy Efficiency in Buildings, August 21, 2008.

Takahashi, K. 2005. Discussant at the World Bank Expert Workshop on CDM methodologies and Technical Issues Associated with Power Generation and Power Saving Activities, December 3, 2005.

OTHER RELEVENT WORK

- Assisted NYSERDA with developing (a) a database of renewable heating and cooling (RH&C) technologies, (b) an Excel-based tool to analyze benefits and costs of RH&C, and (c) a state RH&C Policy Framework titled “Renewable Heating and Cooling Policy Framework: Options to Advance Industry Growth and Markets in New York.”
- Assisted U.S. EPA with its analysis for and preparation for technical support documents on energy efficiency associated with U.S. EPA’s Clean Power Plan under 111(d) regulation
- Assisted New Jersey Division of Rate Counsel with reviewing and commenting on various energy related proposals and documents in New Jersey including utility and the state energy efficiency programs and the state’s energy plans. 2009 to 2020.
- Assisted Nova Scotia Utility and Review Board with a review of energy efficiency potential and integrated resource planning for Nova Scotia Power’s jurisdiction. 2013
- Assisted the Hawaii Division of Consumer Advocacy in proceedings to develop and review IRPs for three electric companies and to review the state’s energy efficiency programs. 2012 to 2014.

- Assisted the Arkansas Public Service Commission staff with (a) reviewing and assessing utility integrated resource planning and energy efficiency program proposals and (b) drafting regulatory orders on comprehensive energy efficiency program designs and reporting methods. 2012 to 2013.
- Assumed a general contractor role for renovating an existing multi-family house into an ultra-low energy use house equipped with state-of-art energy efficiency measures (such as R-7 windows, R-70 roof insulation, a 95 percent efficient energy recovery ventilation system, cold climate heat pumps) and a 5 kW solar photovoltaic system. December 2012.
- Assisted Nova Scotia Utility and Review Board with developing Community Based Feed-In Tariffs (COMFITs) for five different technologies: small wind projects, medium-sized wind projects, small hydro, small tidal, and biomass CHP projects. April 2011.
- Analyzed existing deep energy retrofit (DER) project data and analyzed potential energy savings from model partial DER projects (e.g., attic, above-grade wall, windows, basement wall) using REM/Rate building energy software and Synapse's own spreadsheet building energy model developed for this research project. The results from the analysis were used to project energy savings from and to set incentive levels for partial DER projects as part of National Grid's 2013-2015 efficiency program filing.
- Assisted several states, including Alaska, Colorado, Florida, Maryland, Massachusetts, and South Carolina with developing and analyzing their state climate change action plans; evaluated costs and benefits of demand and supply-side policy options, including quantifying expected greenhouse emission reductions. 2007 to 2010.
- Arranged meetings for Union Fenosa/Gas Natural, a Spanish electric and gas company, with Japanese and Korean organizations to study energy efficiency technologies, programs and policies in those countries; Visited Japanese organizations with the delegates of Union Fenosa, provided them technical and translation assistance on energy efficiency in Japan. July 26 to July 31, 2009.

CONFERENCES

- 2022 ACEEE Summer Study on Energy Efficiency in Buildings, August 24, 2022.
- 2019 ACEEE National Conference on Energy Efficiency as a Resource, October 15, 2019
- 2019 Electrification U.S. Symposium Series – Pathways to Decarbonization in the Northeast, August 27-29, 2019.
- 2019 AESP Annual Conference, January 24, 2019.
- 2018 ACEEE Summer Study on Energy Efficiency in Buildings, August 12, 2018.
- 2017 ACEEE National Conference on Energy Efficiency as a Resource, October 30, 2017.
- 9th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'17), September 13-15, 2017.
- NEEP Northeast Strategic Energy Management Collaborative Workshop, November 15, 2016.

- NEEP 2016 EM&V Forum Annual Public Meeting: the Future of Evaluation, March 30, 2016.
- 2015 ACEEE National Conference on Energy Efficiency as a Resource, September 21, 2015.
- EUCI Conference on Utility Integrated Resource Planning (IRP), May 13-15, 2015.
- 2013 ACEEE National Conference on Energy Efficiency as a Resource, September 22-24, 2013.
- 7th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'13), September 11-13, 2013.
- Energy Measure Verification Workshop (sponsored by Massachusetts Department of Energy Resources), September 2013.
- Smart Building: High Performance Homes - Workshop for building professionals, June 22, 2011.
- NESEA Building Energy 11 Conference, March 8-10, 2011.
- Build Boston 2010 on Residential Design and Construction, November 17, 2010.
- ACI New England Conference 2010, October 6, 2010.
- 2010 ACEEE Summer Study on Energy Efficiency in Buildings, August 18-20, 2010.
- NESEA Building Energy 10 Conference, March 8-10, 2010.
- 5th International Conference on Energy Efficiency in Domestic Appliances and Lighting (EEDAL'09), June 24, 2009.
- 2008 ACEEE Summer Study on Energy Efficiency in Buildings, August 21, 2008.
- Tufts University Clean Distributed Energy Workshop, June 8, 2006.
- The 2006 Northeast Energy Efficiency Summit, May 17.
- The 2006 Distributed Generation & Interconnection Conference held by DTE Energy, April 26-28, 2006.
- United Nations Climate Change Conference at its eleventh session / Twenty-third sessions of the Subsidiary Bodies and COP/MOP 1, December 2005.

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