

Kenji Takahashi, Senior Associate

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PROFESSIONAL EXPERIENCE

Synapse Energy Economics Inc, Cambridge, MA. *Senior Associate, 2015 – present, Associate, 2004 – 2015.*

Analyze technologies, policies, and regulations associated with supply and demand side energy resources. Assess the performance, costs, and potential of electric and natural gas energy efficiency measures and renewable energy technologies and resources. Examine economic and environmental implications of clean energy policies and programs associated with energy efficiency, demand response, distributed generation, and renewable energy. Examine ratemaking issues such as standby rates for distributed generation and decoupling rate mechanisms for energy efficiency measures. Investigate electricity and natural gas market price trends and fluctuations. Prepare 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 (Maryland) (Report prepared for the US 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 (Prepared 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

Center for Energy and Environmental Policy, University of Delaware, Newark, DE

Master of Arts in Urban Affairs and Public Policy with a concentration in 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.

AWARDS AND SCHOLARSHIPS

- Director's Citation, Department of Urban Affairs and Public Policy, University of Delaware, May 2003.
- NEC scholarship for an environmental education leader-training program funded by one of the leading Japanese computer companies, NEC, November 2000.

ADDITIONAL SKILLS

Software: MS Office, Minitab, Analytica, RETScreen, and REM/Rate™

Language: Japanese, Cantonese, and Spanish

CONFERENCES

- 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.

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- 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: A 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.

OTHER RELEVANT 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 present.

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- 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.
 - Assessed on behalf of Sierra Club energy efficiency and demand response potential estimates by the Cadmus Group for Puget Sound Energy, September 2012.
 - 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.
 - Assessed on behalf of Sierra Club energy efficiency goals proposed in the Los Angeles Department of Water and Power's 2010 integrated resource plan.
 - 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 being developed for this research project. The result from our 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.

PUBLICATIONS

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*. Prepared by 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. Prepared by 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.

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." Memorandum prepared by 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.

Comings, T., S. Jackson, K. Takahashi. 2015. *Comments on Indianapolis Power & Light Company's 2014 Integrated Resource Plan*. Synapse Energy Economics for the Sierra Club.

Stanton, E. A., P. Knight, J. Daniel, B. Fagan, D. Hurley, J. Kallay, E. Karaca, G. Keith, E. Malone, W. Ong, P. Peterson, L. Silvestrini, K. Takahashi, R. Wilson. 2015. *Massachusetts Low Gas Demand Analysis: Final Report*. Synapse Energy Economics for the Massachusetts Department of Energy Resources.

Fields, S., E. A. Stanton, P. Knight, B. Biewald, J. Daniel, S. Jackson, E. Karaca, J. Rosenkranz, K. Takahashi. 2014. *Calculating Alabama's 111(d) Target*. Synapse Energy Economics for the Southern Environmental Law Center.

Fields, S., E. A. Stanton, P. Knight, B. Biewald, J. Daniel, S. Jackson, E. Karaca, J. Rosenkranz, K. Takahashi. 2014. *Calculating Georgia's 111(d) Target*. Synapse Energy Economics for the Southern Environmental Law Center.

Fields, S., E. A. Stanton, P. Knight, B. Biewald, J. Daniel, S. Jackson, E. Karaca, J. Rosenkranz, K. Takahashi. 2014. *Alternate Scenarios for 111(d) Implementation in North Carolina*. Synapse Energy Economics for the Southern Environmental Law Center.

Stanton, E. A., P. Knight, J. Daniel, B. Fagan, D. Hurley, J. Kallay, G. Keith, E. Malone, P. Peterson, L. Silverstrini, K. Takahashi. 2014. *Feasibility Study for Low Gas Demand Analysis*. Synapse Energy Economics for the Massachusetts Department of Energy Resources.

Takahashi, K., T. Comings, A. Napoleon. 2014. *Maximizing Public Benefit through Energy Efficiency Investments*. Synapse Energy Economics for Sierra Club.

Vitolo, T., J. Fisher, K. Takahashi. 2014. *TVA's Use of Dispatchability Metrics in Its Scorecard*. Synapse Energy Economics for Sierra Club.

Comings, T., S. Fields, K. Takahashi, G. Keith. 2014. *Employment Effects of Clean Energy Investments in Montana*. Synapse Energy Economics for Montana Environmental Information Center and Sierra Club.

Keith, G., S. Jackson, J. Daniel, K. Takahashi. 2014. *Idaho's Electricity Sources: Current Sources and Future Potential*. Synapse Energy Economics for the Idaho Conservation League.

Malone, E. T. Woolf, K. Takahashi, S. Fields. 2013. "Appendix D: Energy Efficiency Cost-Effectiveness Tests." *Readying Michigan to Make Good Energy Decisions: Energy Efficiency*. Synapse Energy Economics for the Council of Michigan Foundations.

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

Comings, T., K. Takahashi, G. Keith. 2013. *Employment Effects of Investing in Select Electricity Resources in Washington State*. Synapse Energy Economics for Sierra Club.

Woolf, T., E. Malone, J. Kallay, K. Takahashi. 2013. *Energy Efficiency Cost-Effectiveness Screening in the Northeast and Mid-Atlantic States*. Synapse Energy Economics for Northeast Energy Efficiency Partnerships, Inc. (NEEP).

Stanton, E. A., T. Comings, K. Takahashi, P. Knight, T. Vitolo, E. Hausman. 2013. *Economic Impacts of the NRDC Carbon Standard*. Synapse Energy Economics for the Natural Resources Defense Council (NRDC).

Woolf, T., W. Steinhurst, E. Malone, K. Takahashi. 2012. *Energy Efficiency Cost-Effectiveness Screening: How to Properly Account for 'Other Program Impacts' and Environmental Compliance Costs*. Synapse Energy Economics for Regulatory Assistance Project and Vermont Housing Conservation Board.

Woolf, T., M. Whited, T. Vitolo, K. Takahashi, D. White. 2012. *Indian Point Energy Center Replacement Analysis: A Plan for Replacing the Nuclear Plant with Clean, Sustainable, Energy Resources*. Synapse Energy Economics for National Resources Defense Council and Riverkeeper.

Keith, G., T. Woolf, K. Takahashi. 2012. *A Clean Electricity Vision for Long Island: Supplying 100% of Long Island's Electricity Needs with Renewable Power*. Synapse Energy Economics for Renewable Energy Long Island.

Fisher, J., K. Takahashi. 2012. *TVA Coal in Crisis: Using Energy Efficiency to Replace TVA's Highly Non-Economic Coal Units*. Synapse Energy Economics for Sierra Club.

Woolf, T., E. Malone, K. Takahashi, W. Steinhurst. 2012. *Best Practices in Energy Efficiency Program Screening: How to Ensure that the Value of Energy Efficiency is Properly Accounted For*. Synapse Energy Economics for National Home Performance Council.

Takahashi, K., W. Steinhurst. 2012. *A Preliminary Analysis of Energy Impacts from Partial Deep Energy Retrofit Projects in National Grid's Jurisdiction*. Synapse Energy Economics for National Grid, USA.

Synapse Energy Economics. 2012. *Economic and Environmental Analysis of Residential Heating and Cooling Systems: A Study of Heat Pump Performance in US Cities*. Prepared for a HVAC manufacture company.

Hornby, R., D. White, T. Vitolo, T. Comings, K. Takahashi. 2012. *Potential Impacts of a Renewable and Energy Efficiency Portfolio Standard in Kentucky*. Synapse Energy Economics for Mountain Association for Community Economic Development and The Kentucky Sustainable Energy Alliance.

Keith, G., B. Biewald, E. Hausman, K. Takahashi, T. Vitolo, T. Comings, P. Knight. 2011. *Toward a Sustainable Future for the US Power Sector: Beyond Business as Usual 2011*. Synapse Energy Economics for Civil Society Institute.

Synapse Energy Economics. 2011. *Electricity Scenario Analysis for the Vermont Comprehensive Energy Plan 2011*. Prepared for Vermont Department of Public Service.

Bourgeois, T., D. Hall, W. Steinhurst, K. Takahashi. 2011. *Deployment of Distributed Generation for Grid Support and Distribution System Infrastructure: A Summary Analysis of DG Benefits and Case Studies*. Pace Energy and Climate Center and Synapse Energy Economics for New York State Energy Research and Development Authority (NYSERDA).

Peterson, P., V. Sabodash, K. Takahashi. 2010. *Demand Side Resource Potential: A Review of Global Energy Partners' Report for Midwest ISO*. Synapse Energy Economics for Project for Sustainable FERC Energy Policy.

Keith, G., B. Biewald, E. Hausman, K. Takahashi, T. Vitolo, T. Comings, P. Knight. 2010. *Beyond Business as Usual: Investigating a Future Without Coal and Nuclear Power in the US*. Synapse Energy Economics for Civil Society Institute.

Napoleon, A., W. Steinhurst, M. Chang, K. Takahashi, R. Fagan. 2010. *Assessing the Multiple Benefits of Clean Energy: A Resource for States*. US Environmental Protection Agency with research and editorial support from Stratus Consulting, Synapse Energy Economics, Summit Blue, Energy and Environmental Economics, Inc., Demand Research LLC, Abt Associates, Inc., and ICF International.

James, C., K. Takahashi, W. Steinhurst. 2009. *North Dakota Energy Efficiency Potential Study Report*. Synapse Energy Economics for Plains Justice.

James, C., K. Takahashi, W. Steinhurst. 2009. *South Dakota Energy Efficiency Potential Study Report*. Synapse Energy Economics for Plains Justice.

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.

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

Hurley, D., K. Takahashi, B. Biewald, J. Kallay, R. Maslowski. 2008. *Cost and Benefits of Electric Utility Energy Efficiency in Massachusetts*. Synapse Energy Economics for Northeast Energy Efficiency Council.

Takahashi, K., D. Nichols. 2008. *The Sustainability and Costs of Increasing Efficiency Impacts: Evidence from Experience to Date*. Proceedings of the 2008 ACEEE Summer Study on Energy Efficiency in Buildings, August 20, 2008.

Hornby, R., C. Salamone, S. Perry, D. White, K. Takahashi. 2008. *Advanced Metering Infrastructure- Implications for Residential Customers in New Jersey*. Synapse Energy Economics for New Jersey Division of the Ratepayer Advocate.

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.

Synapse Energy Economics. 2006. *The Glebe Mountain Wind Energy Project: Assessment of Project Benefits for Vermont and the New England Region*. Prepared for Glebe Mountain Wind Energy, LLC.

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.

TESTIMONY

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

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.

PRESENTATIONS

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.

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