

Sanem Sergici

PRINCIPAL

Boston, MA

+1.617.864.7900

Sanem.Sergici@brattle.com

Dr. Sanem Sergici is a Principal in The Brattle Group's Boston, MA office specializing in innovative retail rate design and economic analysis of distributed energy resources (DERs). She regularly assists her clients in matters related to electrification, grid modernization investments, emerging utility business models and alternative ratemaking mechanisms.

Dr. Sergici has been at the forefront of the design and impact analysis of innovative retail pricing, enabling technology, and behavior-based energy efficiency pilots and programs across North America. She led numerous studies in these areas that were instrumental in regulatory approvals of grid modernization investments and smart rate offerings for electricity customers. More recently, she undertook several studies that explore the impact of electrification on grid investments and investigate the role of distributed energy resources in meeting climate goals.

Dr. Sergici regularly publishes in academic and industry journals and presents at industry events. She has been awarded an Energy Systems Integration Group (ESIG) 2024 Excellence Award for her work on a broad range of innovative pathways to align customer pricing with grid needs. She received her PhD in Applied Economics from Northeastern University in the fields of applied econometrics and industrial organization. She received her MA in Economics from Northeastern University, and BS in Economics from Middle East Technical University (METU), Ankara, Turkey.

AREAS OF EXPERTISE

- Electrification
- Innovative Retail Electricity Pricing
- Grid Modernization
- Distributed Energy Resources
- Decarbonisation Pathways and Resource Planning
- Utility Regulatory and Business Models
- Demand Forecasting

EXPERT TESTIMONY AND REGULATORY FILINGS

Report filed before New Jersey Board of Public Utilities (NJBPU), “An Assessment of Energy Affordability in New Jersey and Alternative Policy and Rate Options,” March 30, 2025 (with Goksin Kavlak, Kailin Graham, and John Gonzalez).

Before the Washington, D.C. Public Service Commission, “An Assessment of Electrification Impacts on the Pepco D.C. Distribution System,” report filed on behalf of Pepco, Formal Case No. 1167, October 31, 2025 (with A. Ramakrishnan, A. Bigelow, R. Hledik, M. Hagerty, O. Grocott, T. Zhang).

Rebuttal Testimony filed before the Public Utilities Commission of Nevada, Docket No. 24-05_, in the matter of 2024 Joint Triennial Integrated Resource Plan (2025-2044), on behalf of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy, October 22, 2024.

Direct Testimony filed before the Public Utilities Commission of Nevada, Docket No. 24-05_, in the matter of 2024 Joint Triennial Integrated Resource Plan (2025-2044), on behalf of Nevada Power Company d/b/a NV Energy and Sierra Pacific Power Company d/b/a NV Energy, May 31, 2024.

Testimony filed before the Federal Energy Regulatory Commission, Docket no. ER24-000, in the matter of Submission of Revisions to 2024 Rate Schedule A, on behalf of Basin Electric Power Cooperative, March 25, 2024.

Testimony before the IOWA Utilities Board, Docket No. RPU – 2023 – 0002, on behalf of Interstate Light and Power Company, October 12, 2023.

Sur - Surrebuttal Testimony pre-filed before the Public Service Commission of Wisconsin, Docket No. 6680-UR-124, in the matter of Wisconsin Power and Light Company Application for Authority to Adjust Electric and Natural Gas Rates for 2024 and 2025 Test Years, on behalf of Wisconsin Power and Light Company, September 26, 2023.

Surrebuttal Testimony pre-filed before the Public Service Commission of Wisconsin, Docket No. 6680-UR-124, in the matter of Wisconsin Power and Light Company Application for Authority to Adjust Electric and Natural Gas Rates for 2024 and 2025 Test Years, on behalf of Wisconsin Power and Light Company, September 25, 2023.

Rebuttal Testimony pre-filed before the Public Service Commission of Wisconsin, Docket No. 6680-UR-124, in the matter of Wisconsin Power and Light Company Application for Authority to Adjust

Electric and Natural Gas Rates for 2024 and 2025 Test Years, on behalf of Wisconsin Power and Light Company, September 19, 2023.

Report filed before Massachusetts DPU, “A Review of National Grid’s Load Forecasting Methodology,” report filed on behalf of National Grid in the Company’s Future Grid Plan, September 2023.

Report filed before Massachusetts DPU, “An Assessment of National Grid Electric Sector Modernization Plan,” report filed on behalf of National Grid in the Company’s Future Grid Plan, September 2023.

Report filed before Massachusetts, “An Assessment of National Grid Electric Sector Modernization Plan,” report filed on behalf of National Grid, August 31, 2023.

Report filed before Massachusetts, “A Review of National Grid’s Load Forecasting Methodology,” report filed on behalf of National Grid, August 30, 2023.

Before the New Jersey Board of Public Utilities, “New Jersey Energy Master Plan Ratepayer Impact Study,” report filed August 2022 (with G. Kavlak, K. Spees, R. Janakiraman).

Before the British Public Utilities Commission, “A Review of BC Hydro’s Optional Residential TOU Rate,” report filed on behalf of BC Hydro in the Company’s Optional Residential Time-of-Use Rate Application, February 21, 2023 (with R. Hledik).

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 21-078, In the matter of Electric Make Ready and Demand Charge Alternative Proposals, on behalf of the New Hampshire Department of Energy, February 28, 2022.

Filed testimony before the Washington Utilities and Transportation Commission in the Matter of Puget Sound Energy General Rate Case. Docket UE-220066 and Docket-UG220067, January 31, 2022.

Before the Public Service Commission of the District of Columbia, “Pepco’s Climate Solutions 5-Year Action Plan: Benefits and Costs,” report filed on behalf of Pepco in Formal Case No. 1167, January 2022 (with S. Sergici, M. Hagerty, M. Witkin, J. Olszewski, and S. Ganjam).

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 20-170, In the matter of Electric Distribution Utilities Electric Vehicle Time of Use Rates, on behalf of the New Hampshire Department of Energy, October 13, 2021.

Report filed before the Public Service Commission of the District of Columbia, “An Assessment of Electrification Impacts on the Pepco DC System,” on behalf of Pepco in Formal Case No. 1167, August 27, 2021 (with R. Hledik, M. Hagerty, and J. Olszewski)

Testimony before the Nova Scotia Utility and Review Board in the Matter of The Public Utilities Act, R. S. N. S. 1989, c380, as amended and Application by Nova Scotia Power Incorporated for Approval of Time-Varying Pricing Tariff Application - M09777, May 17, 2021.

Filed rebuttal evidence before the Nova Scotia Utility and Review Board in the Matter of The Public Utilities Act, R. S. N. S. 1989, c380, as amended and Time-Varying Pricing Tariff Application - M09777, April 22, 2021.

Filed direct evidence before the Nova Scotia Utility and Review Board in the Matter of The Public Utilities Act, R. S. N. S. 1989, c380, as amended and Time-Varying Pricing Tariff Application - M09777, November 30, 2020.

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 19-057, Distribution Service Rate Case, on behalf of the Staff of the New Hampshire Public Utility Commission on rate design studies, December 20, 2019.

Testimony before the State of New Hampshire Public Utilities Commission, Docket No. DE 19-064, Distribution Service Rate Case, on behalf of the Staff of the New Hampshire Public Utility Commission on rate design studies, December 6, 2019.

SELECTED CONSULTING EXPERIENCE

INNOVATIVE RATE DESIGN AND IMPACT EVALUATION STUDIES

- Develop a technical brief in collaboration with DOE and Lawrence National Berkeley Lab on “Electricity Rate Designs for Large Loads: Evolving Practices and Opportunities”.
- For a large southeastern utility, Dr. Sergici evaluated the Company’s tariff offerings for large customers. These tariffs are developed based on marginal pricing principles to ensure that the cost imposed by these large loads are appropriately assigned to the customers causing them.

- For an energy equipment manufacturer, prepared materials to educate the leadership on large load pricing principles and implementations across the USA. The Brattle team also analyzed the large load tariffs and implications for the developer's projects in a few jurisdictions of interest.
- With Lawrence Berkeley National Lab, developed a brief on the landscape of rate offerings for large load customers across the U.S. Summarized the range of approaches being taken across key rate design decisions.
- For a large utility, developed alternative frameworks for a clean transition tariff to be offered to hyper-scalers.
- For Interstate Power and Light, Dr. Sergici reviewed IPL's tariffs; proposed updates to the existing rates and designed several optional rates for IPL's residential and non-residential customers. Brattle team updated IPL's embedded cost of service study, developed a marginal cost of service study and designed two default and four optional rates. Dr. Sergici filed direct testimony detailing methodologies for these studies and rate designs.
- For a gas and electric distribution utility in the Northeast, analyzed the operating cost of electric heat pumps and natural gas-fueled heating equipment, quantified the cost gap between the two types of equipment under alternative rate designs, and assisted in the development of rate designs to mitigate the cost gap. The study included estimation of the electric load impacts of electrification of a small sample of the utility's residential customers based on their historical gas usage, followed by calculation of their hypothetical future electricity bills under various rate structures. The utility is using insights from this study to appropriately size heat pump incentives and to mitigate the heat pump affordability barrier by marketing a beneficial rate structure to customers.
- Assisted with rate design proposal. Brattle has been retained by Nova Scotia power to assist with a comprehensive evaluation of innovative rate designs and development of Company's rate design proposal including load and bill impact analyses. Brattle team participated in stakeholder sessions to socialize the rate design with the stakeholders.
- Review of Rate Design Studies on Behalf of the Staff of the New Hampshire Public Utilities Commission. Brattle reviewed the rate design studies presented by Liberty Utilities and Eversource and filed testimony on behalf of the Staff. Both studies focused on the distribution services offered by the utilities and examined and testified on issues involving embedded and marginal cost based rate design. Dr. Sergici filed direct testimony in the proceeding.
- For CPS energy, prepared educational presentation materials for Rate Advisory Committee meetings. Prepared slide decks to explain concepts and methods in cost of service and rate design studies; summarized results from previous Brattle projects.

- Design, measurement and verification of Maryland Joint Utilities' PC44 TOU pilot. Brattle serves as the technical lead on behalf of the Maryland Joint Utilities, and led the pilot design and M&V methodology work streams in the PC44 workgroup process. Brattle will evaluate results from these three pilots in 2020.
- Assisted a New Zealand distribution utility with development of a peak time rebate pilot. Advised the client in pilot design principles and calculated sample sizes to yield statistically significant results. Undertook empirical testing of more than 150 different baseline methods using the client data and recommended an approach that leads to the highest accuracy and lowest bias in predicting the event day usage.
- Developed a model for the Ontario Energy Board to estimate a counterfactual hourly customer demand profile for multiple innovative pricing profiles of interest. Evaluated the economic efficiency of each alternative pricing option, taking into account system cost drivers including energy, ancillary services, generation capacity, and transmission and distribution capacity, as well as overall changes to consumer welfare driven by induced changes in demand. This represents one of few efforts to fully quantify the societal costs and benefits of innovative rate structures and involved close collaboration with the OEB team to ensure the Ontario-specific market structures were accurately reflected in our analysis.
- Technical Advisor to OEB on the New RPP Pilots. A Brattle team led by Dr. Sergici has developed a Technical Manual to guide the design and impact evaluation of new RPP pilots. Dr. Sergici has been closely working with the OEB RPP team as they oversee the implementation of these pilots in accordance with the guidelines
- Undertook impact Evaluation of Ontario's Time-of-Use Rates on Behalf of Ontario Power Authority. A Brattle team led by Dr. Sergici provided an impact evaluation of Ontario's province-wide roll-out of Time-of-Use (TOU) rates for its residential and general service customers on behalf of Ontario Power Authority. Brattle acquired hourly load data from the IESO and the LDCs, aggregated it for the pricing periods that correspond to the TOU rate, reinterpreted the full-scale deployment as a natural experiment, and analyzed it using econometric methods for three consecutive years.
- Undertook a retail rate benchmarking study for a large southwestern utility. Our team, led by Dr. Sergici, reviewed utility resource plans to estimate each utility's retail rate trajectory. We compared the utilities across a variety of rate drivers, such as reserve margin, fuel mix, load growth, load factor, renewables investment requirements, and demand-side activities, and provided strategic recommendations for addressing these drivers of future rate growth.
- Undertook an extensive review of the rate designs and methodologies used by other jurisdictions/countries for a large Canadian Utility. We reviewed the rates that are currently offered by a large Canadian utility and compared them with best industry practices from around

the globe. As a result of our analysis, we identify some near term and long term alternative rate design options for our client, which can help them to manage revenue risks and volatility due to the effects of disruptive threats, and at the same time to increase innovation and affordability in the rate options presented to the customers.

- Assisted Pepco Holdings, Inc. to evaluate the effectiveness of the AMI-enabled energy managements tools (EMTs) in reducing per capita energy use. Led a team of four researchers to compile and process data for four of the PHI jurisdictions; identify relevant control groups and methodology for impact evaluation and undertake an econometric analysis to quantify the EMT impact.
- Assisted an industry-leading provider of integrated demand response, energy efficiency, and customer engagement solutions in the design of and M&V plan for a behavioral demand response program. The plan included a detailed section on sampling selection for statistically valid and detectable program impact results.
- Prepared a comprehensive blueprint document for measuring the impacts of Baltimore Gas and Electric Company's Smart Grid Customer Programs. BGE has started deploying smart meters to all of its residential customers in Spring of 2012 and is scheduled to complete the deployment over a three-year period. BGE developed a full-scale program, "Smart Energy Manager (SEM)" program, to meet a central objective of the Smart Grid Initiative - customer education and engagement in a Smart Grid environment. The blueprint documented the design elements of the SEM program and introducing the approaches that will be used to measure the impacts of different SEM tools once the program is in the field and sufficient data are collected.
- Measurement and evaluation for in-home displays, home energy controllers, smart appliances and alternative rates for FPL. Carried out a 2-year impact evaluation of a dynamic and enabling technology pilot program. Used econometric methods to estimate the changes in load shapes, changes in peak demand, and changes in energy consumption for three different treatments. The results of this study were shared with Department of Energy as to fulfill the data reporting requirements of FPL's Smart Grid Investment Grant.
- Pricing and technology pilot design and interim impact evaluation for Commonwealth Edison Company (ComEd). Assisted ComEd in the design of an ambitious pilot program that included approximately 25 different treatment cells. The pilot, which is the first "opt-out" pilot program of its kind, involved 8,000 customers and tested the impact of dynamic prices with and without customer education, informational feedback through basic and advanced feedback devices, and other enabling technologies in the summer of 2010. Conducted an interim impact evaluation study preceding the formal impact evaluation of the study, which is planned to be completed by the end of 2011.

- Pricing and technology pilot design and impact evaluation for Consumers Energy. Designed Consumers Energy's pricing and technology pilot and conducted the impact evaluation study after the pilot was completed in September 2010. The pilot tested critical peak pricing (CPP) and peak time rebates (PTR) in conjunction with information treatment and technology. The pilot also tested the potential "Hawthorne bias" for a group of control group customers who were aware of their involvement in the pilot.
- For an Independent System Operator (ISO), designed, managed and analyzed a market research to help improve participation in retail electricity products that encourage price-responsive demand (PRD). The research determined customer preferences for various time-based pricing products that would help define PRD products that may be developed in the ISO for each customer class. ISO will use the results of this research to assist in modifying wholesale market design to better support such PRD products.
- Assisted a client in conceptually developing a new product that would increase customer participation and performance in energy efficiency (EE) and demand response (DR) programs. Developed Total Resource Cost (TRC) tests for a few targeted EE and DR programs, and modeled the benefits and costs with and without the client's new product offering
- Co-authored a whitepaper reviewing the results from five recent pilot and full-scale programs that investigated low-income customer price-responsiveness to dynamic prices. The core finding of the whitepaper is that low income customers are responsive to dynamic rates and that many such customers can benefit even without shifting load.
- For a large California utility, conducted an econometric analysis, which investigated the role of weather conditions, smart meter installations, and electricity rate increases, among other control variables, in explaining the changes in the monthly usages and bills of a group of complaining customers. Estimated pooled regressions using a panel dataset, as well as individual customer regressions for more than 1,000 customers.
- Assisted an Illinois electric utility in the assessment of alternative baseline calculation for implementing peak time rebate (PTR) programs. Under a PTR program, participants receive a cash rebate for each kWh of load that they reduce below their baseline usage during the event hours. This requires establishment of a baseline load from which the reductions can be computed. The analysis involved simulating baselines for more than 2,000 customers using five alternative methodologies for several event days. Identified and recommended the baseline calculation methodology that yielded the most accurate baseline for individual customers, through the use of MAPE and RMSE statistics.
- Evaluated the Plan-It Wise Energy program (PWEP) of Connecticut Light and Power (CL&P) Company. PWEP tested the impacts of critical peak pricing (CPP), peak time rebates (PTR), and time of use (TOU) rates on the consumption behaviors of residential and small commercial

customers. Each rate design was tested with high and low price variation as well as with and without enabling technologies. Conducted an econometric analysis to determine weather dependent substitution and daily price elasticities and subsequently quantified demand and energy impacts for each of the treatments tested in the PWEF. Developed optimal rate designs to be adopted in a full deployment scenario.

- For Baltimore Gas and Electric Company, assisted in the preparation of direct and rebuttal expert testimonies before the Maryland Public Service Commission, that explain the design and results of 2008 and 2009 Smart Energy Pricing (SEP) pilots.
- Evaluated the Smart Energy Pricing (SEP) pilot program of Baltimore Gas and Electric Company for three consecutive years. The pilot was designed to quantify the impacts of critical peak pricing (CPP) and peak time rebates (PTR) on residential customer consumption patterns. Conducted an econometric analysis to estimate demand systems and predict substitution and daily price elasticities for participating customers. Using the parameters of the demand equations, quantified demand, energy, and bill impacts associated with the programs. Impacts of the socio-demographic characteristics of the participants as well as their ownership of enabling technologies were separately identified on the demand response of the program participants.
- Co-authored a business practice manual for forecasting price responsive demand (PRD) in Midwest ISO. The draft manual introduces different methodologies for measuring and incorporating PRD into forecast LSE requirement for LSEs that are at different stages of rolling-out their dynamic pricing programs. The draft manual also proposes methodologies for the verification of the forecasted demand net of PRD for long term planning purposes.
- Assisted in the development of an affidavit that evaluates the implications of PJM's proposed revisions to the Operating Agreement (OA) on barriers to participation in PJM's Economic and Emergency Load Response programs.
- Co-authored a whitepaper on "Moving Toward Utility-Scale Deployment of Dynamic Pricing in Mass Markets" for Institute for Electric Efficiency. Whitepaper is intended to help facilitate nationwide progress toward the deployment of dynamic pricing of electricity by summarizing information that may assist utilities and regulators who are assessing the business case for advanced metering infrastructure (AMI).
- Assisted a New York utility in benchmarking their existing Demand Response (DR) portfolio to the best practice in U.S. and recommended improvements in their planned DR portfolio. Also assisted the utility in quantifying costs and benefits of pilot programs proposed in their DR filing before the State of New York Public Service Commission.

- Assisted an electric utility in developing a residential pricing pilot program that tests inclining-block rate (IBR) structure. More specifically, designed several revenue neutral IBR alternatives and quantified load reduction and bill impacts from these IBR rates.
- Assisted an electric utility in their dynamic rate design efforts. Conducted impact analyses of converting from a flat rate design to alternative dynamic rate designs for each of the five major customer rate classes of the utility. Developed models that allow simulation of energy, demand, and bill impacts by season, day type and time period for an average customer from each of customer classes.
- Simulated the potential demand response of an Illinois utility's residential customers enrolled in real time prices. Results of this simulation were used in recent Midwest ISO Supply Adequacy Working Group (SAWG) meeting to facilitate conversation about price responsive demand in the region. Simulations were run for different scenarios including historic versus spiky real-time prices; peak versus uniform allocation of capacity charges; and with and without enabling technologies.
- Designed a survey on Long-run Drivers of U.S. Energy Efficiency and Demand Response Potential on behalf of EPRI and EEI. Conducted statistical analyses to examine the survey responses, which were turned in by more than 300 power industry leaders and academic experts. Using the outcomes from this survey, assisted in the development of future scenarios to model energy efficiency and demand response impact through 2030.
- Assisted in the preparation of an EEI report that quantifies the benefits to consumers and utilities of dynamic pricing. Undertook a comprehensive review of the dynamic pricing programs across the U.S. and elsewhere. Also implemented price response simulations to quantify the likely peak demand reductions that would realize under alternative dynamic pricing schemes.

ELECTRIFICATION

- For Con Edison, Brattle designed the regulatory structure, business model, and rate design for Con Edison's thermal energy network pilots. The pilot projects are testing the efficacy of an inter-building ambient water loop network with geothermal or water source heat pumps in decarbonizing New York's buildings. The Brattle team is assisting ConEd in determining which parts of the infrastructure will be utility owned and operated, developing revenue requirements, and designing a pricing mechanism that will incent beneficial customer usage of the network. In addition, the Brattle team is conducting a benefit-cost analysis comparing the thermal energy network to an alternative case of full electrification using air source heat pumps.
- For ERCOT, developed a repeatable process for forecasting electric vehicle load impacts at the substation level out to 2029, for use in their System Planning Assessment and provide an

“interactive tool” that could be used to easily replicate and update the analysis in the future. Brattle team developed LDV, MDV, and HDV forecasts for 10 years and allocated these forecasts to the individual substations based on a propensity score model. This model takes into account income, population density and economic activity in a given zip code, and uses this information to allocate forecasted EVs to the substations. After developing EV forecasts for each substation, our team has also developed 8760 charging profiles for all EVs charging at the substation, allowing ERCOT to understand the implications for this new load for transmission planning purposes.

- For the Maryland Public Service Commission (PSC), evaluated the electricity and natural gas demand impacts of heating and transportation electrification, with particular focus on the power system peak demand impacts. Worked with PSC staff and a stakeholder working group to develop alignment on scenarios, assumptions, and modeling methodologies. Prepared a final report and presented to the Maryland Legislature.
- Development of an Econometric Based EV Forecast for Baltimore Gas and Electric Company. The Brattle Team has compiled a comprehensive repository of national EV adoption related data and estimated an econometric model to explain the drivers of US EV sales, using data from 50 states, from 2011-2019. BGE had expressed a strong preference for a model that relates drivers of EV adoption to sales and did not want to use top down forecasts or a diffusion models due to their inflexibility to update assumptions. With the econometric model, it was possible to develop various forecasts depending on federal, state and utility incentives; different battery cost trajectories; alternative EV TOU rates; utility owned charging infrastructure among many other drivers. This econometric model was also supplemented by another system-dynamics based module that captured the supply side drivers of EV sales such as increasing model availability, charging infrastructure and improved R&D activities. Brattle team developed alternative EV sales scenarios for BGE’s service territory and analyzed the impacts of EV load (under managed and unmanaged scenarios) on utility ratemaking, infrastructure investments and other financial metrics.
- For PGE, led the Brattle team developing EV potential as part of PGE’s 2021 DER potential study. Developed light, medium and heavy duty vehicle forecasts through 2040, and quantified the peak, energy and EV charging infrastructure implications of these EV forecasts.
- For Pepco DC, conducted analysis to forecast how the utility’s load would increase if aggressive decarbonization goals are met through electrification, and to determine the extent to which energy efficiency and load flexibility measures could mitigate that load growth, highlighting the key role that load flexibility will play in facilitating the decarbonization transition.
- For SRP, developed an updated EV adoption forecast for their territory to inform the potential scale of the managed charging program, analyzed the system-level benefits of managed EV

charging to inform the level of customer incentives, including energy and capacity cost savings, and reviewed the design of their pilot study

- For Pepco, assessed the benefits and costs of the company's Climate Solutions Plan. The Plan consists of 62 demand-side initiatives, including large energy efficiency, building electrification, and transportation electrification portfolios. The analysis quantified the energy system and environmental benefits of the programs and evaluated the target scale of the impact of the programs. Led a series of stakeholder workshops on the study findings and methodology. The final report was filed with the DC PSC.
- For Baltimore Gas & Electric, evaluated the benefits and costs of school bus electrification, including the impacts of electric school buses providing vehicle-to-grid (V2G) to the system.
- For Con Edison, Brattle developed a benefit-cost analysis framework as part of New York's Non-Pipeline Alternatives (NPA) initiative. As part of the utility planning process, NPA requires utilities to pursue investments in energy efficiency, clean demand response, and electrification to reduce, defer, or eliminate the need for gas infrastructure investments. The NPA framework evaluates the impact utility supply costs, capital and O&M expenses, customer impacts, GHG emissions, and other associated benefits and costs. Most recently, Brattle has supported Con Edison perform BCA analyses for proposed NPA investments, refine and update assumptions in the model, and implement model improvements based on user feedback.
- For Con Edison, Brattle performed a gas marginal cost of service (MCOS) study to quantify the benefits and costs associated with Con Edison's Non-Pipeline Alternative (NPA) program. The goal was to develop granular MCOS values for different types of gas utility infrastructure within the utility's service territory. The granular MCOS values will allow the utility to quantify the benefit of deferring or avoiding gas infrastructure projects through energy efficiency, clean demand response, electrification, or other NPA-related investments. The study also evaluated how MCOS values evolve in a declining gas demand environment.

GRID MODERNIZATION

- Analyzed the impacts of electric utility infrastructure investment on system reliability and resiliency for a Northeastern Utility, following major weather events. Primary area of analysis involved estimation of economic value of investments to customers using value of lost load (VOLL) metrics for electric system investments.
- Authored a comprehensive report for National Electrical Manufacturer's Association (NEMA) that reviews most recently approved 10 major grid modernization projects. Report discusses business cases and cost recovery mechanisms for each of these projects and documents how grid modernization technologies have benefitted customers and utilities.

- Worked with the Puget Sound Energy Grid Modernization team to identify and quantify the customer-facing use cases enabled by the Company's AMI investment. Authored a report detailing the analysis and filed testimony.
- For an investor owned utility, developed a comprehensive survey of cost recovery methods used to recover the costs associated with climate and grid modernization investments, based on the implementations in jurisdictions with major climate goals.
- Served as a member a Technical Advisory Group (TAG), which was formed by Department of Energy (DOE) and Lawrence Berkeley National Laboratory (LBNL). Reviewed and provided feedback on the experimental designs of the utilities that were awarded Smart Grid Investment Grant projects and participated in periodic project review meetings with utilities to review and provide feedback on the interim results as they implement their projects. As part of this assignment, authored a guidance document that discussed different impact evaluation methods, which can be selected by the utilities. This document was shared with the utilities and other TAG members.
- Assisted Pepco Holdings, Inc. to analyze the Phase I of its Conservation Voltage Reduction (CVR) program in its Maryland Service Territory. First of its kind, this econometric study compares consumption of the treatment and control groups before and after the implementation of CVR. More specifically, a regression analysis was conducted to compare the usage levels of treatment and control group customers to determine whether the CVR treatment resulted in statistically significant conservation and peak demand impacts. The analysis accounts for exogenous factors such as weather, calendar and seasonality impacts as well as utility energy and demand savings programs.

DECARBONIZATION PATHWAYS AND UTILITY PLANNING

- For New Jersey Board of Public Utilities, conducted a comprehensive electric and gas consumer total energy cost impact study to assess the energy burden for customers across several customer classes across all major gas and electric utilities in the state. Estimated the impacts of clean energy policies on different customer segments (e.g. customers adopting electric vehicles vs. customers with a gasoline car). Study identified equity implications, including impacts on low-income consumers and consumers with delayed electrification relative to others. The study can be accessed [here](#).
- For Oracle Utilities, estimated the reduction in greenhouse gas (GHG) emissions that could occur by 2030 and 2050 if customer adoption of GHG-reducing technologies, including energy efficiency, rooftop solar, electric vehicles, and electric heat pumps, rises to an aggressive and achievable level.

- For National Grid Massachusetts, developed an independent assessment of its ESMP that identifies upgrades to the distribution and transmission systems, based on expected future scenarios. Dr. Sergici undertook an in depth assessment of Company's proposed: 1) investments deemed necessary to enable an electrification-based approach to meet State's climate goals ; 2) suite of technology investments, in addition to the more traditional distribution investments targeting capacity deficiencies; 3) suite of technology investments to improve the intelligence and agility of its IT systems, communication networks, and monitoring systems; 4) utilization of NWAs, demand response, TVRs and other load flexibility measures to mitigate load growth.
- For a large Canadian utility, serving as an advisor on the utility's load flexibility assumptions in its integrated resource plan.
- Evaluated how policy reforms could increase access and decrease costs of C&I renewable procurement for the REBA Institute, a group representing commercial and industrial (C&I) customers in the United States, through utility subscription programs, power purchase agreements, and third-party retailer providers. The report finds that there is much potential to increase C&I procurement and costs, but the policy pathway to enable these results is dependent on state characteristics. The report finds that introducing supply choice has the greatest potential to increase access but presents uncertainty regarding costs, and that utility subscription programs can present significant near-term opportunities.
- Assisted the New York City's Mayor's Office of Sustainability to evaluate how a carbon trading scheme would impact the costs and benefits of implementing Local Law 97, an ambitious building-sector decarbonization law that mandates 80% emission reductions by 2050. In collaboration with larger consulting team, Brattle team evaluated building segment data regarding the size and energy use of buildings covered by LL97, reviewing and modeling efficiency and electrification emission abatement retrofits, modeling building owner decision making to comply with the law, and designed a carbon trading policy to ensure the program meets the needs of the city government, environmental justice community, and ultimately lowers societal costs.
- Led the Brattle team that assisted the New York City Mayor's Office of Sustainability with the development of New York City's Roadmap to 80 x 50. The Brattle team analyzed the change in energy-sector greenhouse gas (GHG) emissions resulting from more than six future scenarios. These scenarios explored the impacts of aggressive energy efficiency efforts, off-shore wind, and the continuance of low natural gas prices on the emissions footprint of New York City. The analysis shows that in order to reach 80 x 50, New York City will need to achieve a significant portion of its GHG reductions as a result of a dramatic shift towards a renewables-based grid. This shift towards renewables must overcome the anticipated retirement of nuclear facilities prior to 2050 and will be supported by the implementation of New York State's Clean Energy Standard and the declining cost of renewable energy.

- Conducted a study involving “solar to solar” comparison of equal amounts of residential- and utility-scale PV solar deployed in Xcel Energy Colorado’s Service Area. Calculated costs and benefits of each of these two different but equally sized solar options, i.e., avoided energy, capacity and distribution network costs and others. The study found carbon reductions were greater on utility scale systems because the solar energy per MW is much higher on utility-scale due to better placement and tracking capability.
- Assisted the Southern Company IRP team to explore the impacts of modeling energy efficiency on the demand side (involves screening each EE measure for cost-effectiveness outside of the resource planning model) versus on the supply-side (each EE measure is represented as part of an EE supply curve, which directly competes with generation resources in the model’s capacity planning decision algorithm)
- Advised Nova Scotia Power Inc. on the reasonableness of the DSM scenarios and strategies that are being modeled in their Integrated Resource Plan (IRP). This effort also involved advising the Company on a variety of DSM issues and building up a model that quantifies the rate impacts for program participants and non-participants based on the selected DSM scenario.
- Coauthored the State’s Annual Integrated Resource Plan (IRP) for the Connecticut Department of Energy and Environmental Protection (DEEP). This effort involved development of scenarios and strategies for an electric system to meet long-range electric demand while considering the growth of renewable energy, energy efficiency, other demand-side resources. Led the development of demand side management and emerging technology resource strategies and analyses involving these resources.
- Developed a model to assess the prudence of an electric utility’s power procurement strategy in comparison to several other alternative options. As a result of this model, she assessed whether it is prudent to recover the congestion and loss costs associated with utility’s chosen strategy from ratepayers in a state regulatory proceeding.
- Assisted in preparation of a marginal cost study for an integrated electric utility. The study estimated the incremental costs to the utility of serving additional demand and customer by time period, sub-region, and customer class. The costs were identified as energy, capacity and customer related for generation, transmission, and distribution systems of the utility.
- Assisted in developing an integrated resource plan for major electric utilities. Contributed to the design of future scenarios against which the resource solutions were evaluated. Designed scenarios were driven by external factors including fuel prices, load growth, generation technology capital costs, and changes in environmental regulations. Forecasted the inputs series for the resource planning model consistent with each of the designed scenarios.

DISTRIBUTED ENERGY RESOURCES

- For NV Energy, reviewed the Company's non-wires alternative portfolio optimization model and streamlined the optimization model. Brattle team led by Dr. Sergici worked with the Company to implement a cost-benefit analysis in the tool to screen cost-effective portfolios from a societal and utility cost perspectives. Brattle team led five stakeholder sessions to discuss the tool and its findings with stakeholders.
- For Ontario's Independent Electricity System Operator and the Ontario Energy Board, analyzed how different incentives for DERs function collectively to ensure that different incentives achieve the most efficient outcomes. Developed recommendations for improving the economic efficiency of incentives and related programs and policies.
- For a U.S. utility, reviewed the utility's benefit cost assessment model used to evaluate distributed energy resources for alignment with commission orders and staff guidance. The assessment identified areas for refinement, including increasing the temporal and geographic granularity of the model. As part of the review, the Brattle team provided insights into potential misalignments between the valuation of transmission and distribution investment deferral within the model, customer value, and system value. The Brattle team rebuilt the model from the ground-up to allow for intuitive use and ensure that assumptions are clearly articulated and well-documented.
- For a DER software developer, estimated the potential market value of residential load flexibility offerings across five utilities. The analysis highlighted that the load flexibility value proposition varies significantly depending on system and market conditions. The final report is a key input to the company's load flexibility business case.
- For a large east-coast utility, reviewed benefit cost framework and model data to evaluate non-pipeline alternatives. The review included treatment of geographic differences in marginal costs due to pipeline access, and the Brattle team rebuilt the model from the ground-up to allow for intuitive use.
- For a large east-coast utility, developed a benefit-cost analysis model to screen non-wires alternative projects.
- System Dynamics Modeling of DER Adoption and Utility Business Impacts. Led the development of Brattle's Corporate Risk Integrated Strategy Platform (CRISP) model and assisted utility clients with the implementation of this model. CRISP is based on System Dynamics approach, which creates simulations based on dynamic feedbacks between utility policies and customer behavior, providing a new perspective on how much and how fast the "utility of the future" must evolve. The focus of these modeling efforts was to help utilities anticipate and accommodate distributed energy resources (DERs) as they become more economical and more

widely adapted by retail electricity customers, and to evaluate the sustainability of their traditional cost-of-service business model in the face of such trends.

- For EPRI, conducted a study to explore methods for incorporating DERs into integrated resource planning. A unique feature of this study was the use of Brattle's capacity expansion model, GridSIM, to quantitatively illustrate the implications of various DER modeling techniques. In the first phases of the engagement, we assessed the implications of different approaches to modeling energy efficiency (EE) and demand response (DR), such as the advantages and disadvantages of modeling these resources on the "supply side" versus the "demand side" of the model. The current phase of the project focuses on electric vehicles (EVs) and rooftop solar, and includes a review of techniques for forecasting adoption of these technologies, as well as modeling the resource impacts of growth in EV adoption.
- Estimated NEM cross-subsidies using data from sixteen utilities. Used cost-of-service methodology to compare NEM customers costs on the system vs. revenue collection from these customers using company COS studies, and supplementing it by publicly available data on solar PV production profiles, installed DG capacity by utility and system load profiles.

UTILITY REGULATORY AND BUSINESS MODELS

- Assisted the New York Department of Public Service to develop a comprehensive financial model of a representative (downstate) New York utility capable of demonstrating the impacts of REV initiatives upon utility financial performance. Our modeling effort included developing plausible incentive regulation frameworks, new incentive mechanisms, and potential platform frameworks, services and futures.
- Development of Performance Incentive Metrics for the Joint Utilities of New York. The Brattle Group worked with the New York PSC Staff and, subsequently, with the State's six investor owned electric utilities (Joint Utilities) in analyzing the feasibility and impacts associated with proposed earnings sharing mechanisms (EAMs), primarily the EAMs associated with load factor and system efficiency.
- Assisted a North American Utility with development of a short-term and long-term regulatory strategy to enable their 2030 Vision. Brattle team interviewed the executive team; identified consensus views and disagreements on alternative business models and regulatory models. Developed straw proposals for two potential regulatory models one focused on enabling shorter-term outcomes, and the other focused on enabling Company's longer-term vision.
- Assisted Pepco D.C. as they develop a multi-year rate plan and various traditional and emerging performance incentive metrics to be filed in their upcoming rate case. Brattle team developed

and facilitated workshops to introduce Pepco's MYRP proposal to the stakeholders and assisted Pepco with incorporating stakeholder input to the final proposal.

- Assisted a Canadian Utility with a critical assessment of their custom incentive ratemaking model and discussed how it compares with other forms of PBR. We presented a jurisdictional scan of the PBR implementations across North America and Europe, and assessed pros and cons of each approach. We also advised them on currently proposed "Distributed Utility Models" and assess pros and cons of each model; reviewed "Alternative Regulatory Models" that were developed to ensure that utilities can coexist with the DERs and continue to maintain healthy balance sheets.
- For a Canadian electric utility, reviewed and summarized alternative regulatory frameworks and incentive models that would support a sustainable energy efficiency business. Investigated the pros and cons of these models, identified the implications of each model for the utility, and made a recommendation based on our findings. Utility will discuss the recommended approach with the regulator and seek an approval.
- For a large Canadian electric utility, assisted with the development of an alternative proposal to their current performance based regulation (PBR) framework. Examined and benchmarked several examples of performance based regulation schemes in place for other utilities, and advised on an enhanced PBR mechanism.

DEMAND FORECASTING

- For a large energy company, Brattle experts evaluated the drivers of load growth in the ERCOT and PJM region. The study focused on the energy and peak impacts of demand for electricity from data centers and cryptocurrency mining, electric vehicles, and industrial applications; as well as impacts of demand-side resources such as behind-the-meter solar and demand response resources. Brattle experts also assessed how sensitive load growth is to certain assumptions about the key drivers.
- For National Grid Massachusetts, reviewed Company's spatial load forecasting methodology which involves econometric models and incorporates a feeder level DER allocation method. Dr. Sergici provided an expert opinion as part of the Company's ESMP filing.
- For an Asian utility considering an investment on a generation plant in PJM, we have reviewed, replicated, and developed alternative load forecasts using PJM's 2017 update. We have determined several uncertainty factors that are not fully captured in PJM's forecasting framework and developed "low load" and "high load" scenarios after accounting for these factors.
- For an electric utility in the Southeast, reviewed load forecasting models for residential and commercial customer classes. Assessed the accuracy and validity of the models by reviewing the

historic and forecast period inputs to the model; model specification; in-sample and out-of-sample accuracy statistics; and incorporation of DSM impacts to the model, among many others. Also conducted an analysis using the U.S. Energy Information Administration's Annual Energy Outlook (AEO) data to determine the forecast errors during pre and post-recession periods.

- Developed a blueprint for integrating energy efficiency program impacts into the load forecasts for a Canadian Utility. This effort involved estimating the future impact of energy efficiency programs to be included in the load forecasts and developing price elasticity estimates that can be used to forecast the impact of the future changes in the price of electricity.
- Developed a load forecasting model for the pumping load of California State Water Project. Identified the main drivers of pumping load in major pumping stations. Through Monte Carlo simulations, quantified the uncertainty around load forecasts.
- Assisted in the preparation of testimony that evaluates the reasonableness of Florida Power and Light Co.'s total customer and monthly net energy for load (NEL) forecasting models. In addition to evaluating the methodology, also reviewed the reasonableness of the inputs used in the historic and forecast periods and assessed the soundness of ex-post adjustments made to the forecasts.
- Assisted PJM in the evaluation of its models for forecasting peak demand and re-estimated new models to validate recommendations. Predicted forecasting errors of the existing models and helped improving the forecast methodology by introducing the state-of-the art estimation techniques. Individual models were developed for 18 transmission zones as well as a model for the entire PJM system.
- Assisted a large utility in New York in understanding the decline in electric sales during the recent past and attributed the decline to a change in customer expectations of future income, based on declining consumer confidence that has been created by the lingering economic recession.
- Reviewed the structure of the Tennessee Valley Authority's energy sales forecasting models by sector, assessed the magnitudes of the price elasticities and the model specifications used to generate them, analyzed the ability of the models to generate a baseline forecast that could serve as a point of reference when evaluating the likely impacts and cost-effectiveness of a wide range of new energy efficiency and demand response programs.
- Developed a demand forecast model for one of the world's largest steam system operators. Estimated regression models to predict the price elasticities and switching behavior of different consumer classes. Also helped in the development of a model to forecast the impact of alternative steam tariffs on the consumption and switching patterns of consumers.

SELECTED WHITEPAPERS AND REPORTS

- *The Potential Impacts of Large Loads on Electricity Prices: Analysis for Alliant Energy Utilities*, with Long Lam, Ryan Hledik, and Adam Bigelow, (June 2026)
- *The Value of Using DERS for Distribution System Services in Ontario*, with Ryan Hledik and Akhilesh Ramakrishnan, on behalf of Clean Energy Canada, (April 2026)
- *Demonstrating the Full Value of Managed EV Charging*, with Michael Hagerty and Akhilesh Ramakrishnan, on behalf of EnergyHub, (January 2026)
- *Assessment of Ontario's DER Compensation Mechanisms and Recommendations*, with Long Lam, on behalf of the Ontario Energy Board (OEB) and the Independent Electricity System Operator (IESO), (September 2025)
- *Electricity Rate Designs for Large Loads: Evolving Practices and Opportunities*, with Andrew Satchwell, Natalie Mims Frick, Peter Cappers, Ryan Hledik, Goksin Kaylak, Glenda Oskar, prepared for Berkeley Lab (January 2025)
- *Do Customers Respond to Time-Varying Rates: A Preview of Arcturus 3.0*, with Ahmad Faruqui, and Sylvia Tang, (January 31, 2023)
- *Heat Pump-Friendly Cost-Based Rate Designs*, with Goksin Kavlak, Akhilesh Ramakrishnan, Megan Diehl, and Adam Bigelow, prepared for Energy Systems Integration Group (ESIG), (January 30, 2023)
- *ERCOT EV Allocation Study: Methodology for Determining EV Load Impact at the Substation Level*, with Goksin Kavlak, Michael Hagerty, Julia Olszewski, and Grace Kortum, prepared for ERCOT, (October 13, 2022)
- *Community Solar Value Stack in Arizona*, with Akhilesh Ramakrishnan, Michael Hagerty, Beste Kaygisiz, Megan Diehl, and Xander Bartone, prepared for Cypress Creek Renewables, (August 30, 2023)
- [*New Jersey Energy Master Plan Ratepayer Impact Study*](#), with Goksin Kavlak, Kathleen Spees, Rohan Janakiraman, prepared for New Jersey Board of Public Utilities, (August 23, 2022)
- *Benefits and Costs of Climate Solutions Plan*, with Ryan Hledik, Michael Hagerty, Sharan Ganjam, Julia Olszewski, and Matthew Witkin, prepared for Pepco, (February 4, 2022)
- *Carbon Trading for New York City's Building Sector: Report of the Local Law 97 Carbon Trading Study Group to the New York City Mayor's Office of Climate and Sustainability*, with

Kathleen Spees, and Kasparas Spokas, prepared with the Guarini Center on Environmental, Energy & Land Use Law; HR&A Advisors, Inc.; the Institute for Policy Integrity at New York University; and Steven Winter Associates, Inc., (November 15, 2021)

- *Impact of Customer-Driven Adoption of Decarbonization Technologies*, with Ryan Hledik, Michael Hagerty, Ahmad Faruqui, and Kate Peters, prepared for Oracle, (October 21, 2021)
- *The Customer Action Pathway to National Decarbonization*, with Ryan Hledik, Michael Hagerty, Ahmad Faruqui, and Kate Peters, prepared for Oracle (September 2021)
- *An Assessment of Electrification Impacts on the Pepco DC System*, with Ryan Hledik, Michael Hagerty, and Julia Olszewski, prepared for Pepco, (August 31, 2021)
- *PC44 Time of Use Pilots: Year One Evaluation*, with Ahmad Faruqui, Nicholas E. Powers, Sai Shetty, and Jingchen Jiang, prepared for Maryland Joint Utilities (September 15, 2020)
- *Nova Scotia Utility and Review Board: Time-Varying Pricing Project Submission*, with Ahmad Faruqui, prepared for the Nova Scotia Power (June 30, 2020)
- *Getting to 20 Million EVs by 2030: Opportunities for the Electricity Industry in Preparing for an EV Future*, with Michael Hagerty and Long Lam, published by The Brattle Group, Inc. (June 2020)
- *Renewable Energy Policy Pathways*, with Judy Chang, Kasparas Spokas, Maria Castaner, and Peter Jones, prepared in collaboration with the REBA Institute (May 2020)
- *Gross Avoidable Cost Rates for Existing Generation and Net Cost of New Entry for New Energy Efficiency*, with Samuel A. Newell, Michael Hagerty, Jesse Cohen, Sang H. Gang, John Wroble, and Patrick S. Daou, prepared for PJM (March 17, 2020)
- *Energy Efficiency Administrator Models: Relative Strengths and Impact on Energy Efficiency Program Success*, with Nicole Irwin, prepared for Uplight (November 2019)
- *Incorporating Distributed Energy Resources into Resource Planning: Energy Efficiency*, with Ryan Hledik, D.L. Oates, Tony Lee, and Jill Moraski, prepared for EPRI (May 2019)
- *Status of DSM Cost Recovery and Incentive Mechanisms*, with Ahmad Faruqui, Elaine Cunha, and John Higham, prepared for Baltimore Gas & Electric (February 20, 2019)
- *Exploring the Use of Alternative Regulatory Mechanisms to Establish New Base Rates: Response to PC51 Request for Comments*, W. Zarakas, S. Sergici, P. Donohoo-Vallett, and N. Irwin, prepared for Joint Utilities of Maryland and filed in support of comments in PC51 for the Maryland Public Utilities Commission (March 29, 2019)

- *U.S. Alternative Regulatory Mechanisms: Scope, Status and Future*, with William Zarakas and Pearl Donohoo-Vallett, prepared for Baltimore Gas & Electric, Delmarva Power & Light and Pepco (February 19, 2019)
- *A Review of Pay for Performance (P4P) Programs and M&V 2.0*, with Heidi Bishop and Ahmad Faruqui, prepared for Commonwealth Edison (July 20, 2018)
- *Reviewing the Business Case and Cost Recovery for Grid Modernization Investments*, with Michelle Li and Rebecca Carroll, prepared for National Electrical Manufacturers Association (NEM) (2018)
- *Pepco Maryland In-Home Display Pilot Analysis*, with Ahmad Faruqui, prepared for Pepco (June 2017)
- *80x50 Energy Sector Model Assumptions and Results*, with Michael Kline and Pearl Donohoo-Vallett, prepared for the Mayor's Office of Sustainability (January 4, 2017)
- *Impact Evaluation of Pepco District of Columbia's Portfolio of Energy Management Tools*, with Ahmad Faruqui and Kevin Arritt, prepared for Pepco District of Columbia (October 2016)
- *Impact Evaluation of Delmarva Maryland's Portfolio of Energy Management Tools*, with Ahmad Faruqui and Kevin Arritt, prepared for Delmarva Maryland (April 2016)
- *Impact Evaluation of Pepco Maryland's Portfolio of Energy Management Tools*, with Ahmad Faruqui and Kevin Arritt, prepared for Pepco Maryland (January 2016)
- *Impact Evaluation of Pepco Maryland's Phase I Conservation Voltage Reduction (CVR) Program*, with Ahmad Faruqui and Kevin Arritt, prepared for Pepco Maryland (July 2015)
- *Analysis of Ontario's Full Scale Roll-out of TOU Rates – Final Study*, with Neil Lessem, Ahmad Faruqui, Dean Mountain, Frank Denton, Byron Spencer, and Chris King, prepared for Independent Electric System Operator (February 2016)
<http://www.ieso.ca/Documents/reports/Final-Analysis-of- Ontarios-Full-Scale-Roll-Out-of-TOU-Rates.pdf>
- *Comparative Generation Costs of Utility-Scale and Residential Scale PV in Xcel Energy Colorado's Service Area*, with Bruce Tsuchida, Bob Mudge, Will Gorman, Peter Fox-Penner and Jens Schoene (EnernNex), prepared for First Solar (July 2015)
- *Quantifying the Amount and Economic Impacts of Missing Energy Efficiency in PJM's Load Forecast*, with Ahmad Faruqui and Kathleen Spees, prepared for The Sustainable FERC Project (September 2014)

- *Assessment of Load Factor as a System Efficiency Earning Adjustment Mechanism*, with William Zarakas, Kevin Arritt, and David Kwok, prepared for The Joint Utilities of New York (February 2017)
- *Expert Declaration in a Patent Dispute Case involving a Demand Response Product* (July 2014)
- *Measurement and Verification Principles for Behavior-Based Efficiency Programs*, with Ahmad Faruqui, prepared for Opower (May 2011)
http://opower.com/uploads/library/file/10/brattle_mv_principles.pdf
- *Moving Toward Utility-Scale Deployment of Dynamic Pricing in Mass Markets*, with Ahmad Faruqui and Lisa Wood, IEE Whitepaper (June 2009)
- *The Impact of Dynamic Pricing on Low Income Customers*, with Ahmad Faruqui and Jennifer Palmer, IEE Whitepaper (June 2010)

ARTICLES & PUBLICATIONS

- “Retail Pricing: A Low-Cost Enabler of the Clean Energy Transition”, with Long Lam, *IEEE Energy and Power Magazine*, July 2022
- “Bridging the Chasm between Pilots and Full-Scale Deployment of Time-of-Use Rates,” *The Electricity Journal*, Volume 33, Issue 10 (December 2020)
- “Top Performing States in Energy Efficiency: Top States' Secret Sauce,” *Public Utilities Fortnightly* (March 2020)
- “Quantifying Net Energy Metering Subsidies,” with Yingxia Yang, Maria Castaner, and Ahmad Faruqui, *The Electricity Journal*, Volume 32, Issue 8 (October 2019)
- “Arcturus 2.0: A Meta-analysis of Time-varying Rates for Electricity,” with Ahmad Faruqui and Cody Warner, *The Electricity Journal*, Volume 30, Issue 10 (December 2017)
- “Do Manufacturing Firms Relocate in Response to Rising Electric Rates?” with Ahmad Faruqui, *Energy Regulation Quarterly*, Volume 5, Issue 2 (June 2017)
- “Dynamic Pricing Works in a Hot, Humid Climate,” with Ahmad Faruqui and Neil Lessem, *Public Utilities Fortnightly* (May 2017)
- “The impact of AMI-enabled conservation voltage reduction on energy consumption and peak demand,” with Kevin Arritt and Sanem Sergici, *The Electricity Journal*, 30:2, pp. 60-65 (March 2017) <http://www.sciencedirect.com/science/article/pii/S1040619016302536>

- “Integration of residential PV and its implications for current and future residential electricity demand in the United States,” with Derya Eryilmaz, *The Electricity Journal*, 29, 41-52 (2016)
- “Impact Measurement of Tariff Changes when Experimentation is not an Option – A case study of Ontario, Canada,” with Neil Lessem and Dean Mountain, *Energy Economics*, 52, pp. 39-48 (December 2015)
- “Utility Investments in Resiliency: Balancing Benefits with Cost in an Uncertain Environment,” with William Zarakas, *et al.*, *The Electricity Journal*, Volume 27, Issue 5 (June 2014)
- “Low Voltage Resiliency Insurance: Ensuring Critical Service Continuity during Major Power Outages,” with William Zarakas and Frank Graves, *Public Utilities Fortnightly* (September 2013)
- “Arcturus: International Evidence on Dynamic Pricing,” with Ahmad Faruqui, *The Electricity Journal*, 26:7, pp. 55-65 (August/September 2013)
- “Dynamic Pricing of Electricity for Residential Customers: The Evidence from Michigan,” by Ahmad Faruqui, Sanem Sergici and Lamine Akaba, *Energy Efficiency*, 6:3, pp. 571–584 (August 2013)
- “Dynamic Pricing of Electricity in the Mid-Atlantic Region: Econometric Results from the Baltimore Gas and Electric Company Experiment,” with Ahmad Faruqui, *Journal of Regulatory Economics*, 40(1), pp. 82–109 (2011)
- “The Untold Story of: A Survey of C&I Dynamic Pricing Pilot Studies,” with Ahmad Faruqui and Jenny Palmer, *Metering International*, Issue 3 (2010)
- “Divestiture policy and operating efficiency in U.S. electric power distribution,” with John E. Kwoka, Jr., and Michael Pollitt, *Journal of Regulatory Economics* (June 2010)
- “Household Response to Dynamic Pricing of Electricity – A Survey of the Experimental Evidence,” with Ahmad Faruqui, *Journal of Regulatory Economics* (October 2010)
- “Rethinking Prices,” with Ahmad Faruqui and Ryan Hledik, *Public Utilities Fortnightly* (January 2010)
- “Piloting the Smart Grid,” with Ahmad Faruqui and Ryan Hledik, *The Electricity Journal* (August/September 2009)

- "The Impact of Informational Feedback on Energy Consumption - A Survey of the Experimental Evidence," with Ahmad Faruqui and Ahmed Sharif, *Energy-The International Journal* (August 2009)
- "Three Essays on U.S. Electricity Restructuring," Unpublished Ph.D. Thesis, Northeastern University (August 2008)

PRESENTATIONS & SPEAKING ENGAGEMENTS

- "Emerging Technologies and Tools for the Future," presentation at the 8th Annual Grid Modernization Forum (June 2023)
- "Electricity Retail Rates to Facilitate Electrification," presentation at the MIT Future Energy Systems Center Spring 2023 Workshop (June 2023)
- "Developing Innovative Rates for Accelerating the EV Transition," presentation for the DOE EVGrid Assist Team (January 2023)
- "Heat-pump Friendly Cost-Based Rate Designs," presentation at the 2022 NARUC Meeting (November 2022)
- "High Priority Areas for Accelerating EV Transition," presentation at the 2022 NARUC Meeting (November 2022)
- "Modernizing the Grid," presented at the MIT Energy Conference (March 2022)
- "Designing Effective EV Managed Charging Programs," presented at the Peak Load Management Association (PLMA) webinar (October 28, 2021)
- "A New Approach to Strategic Planning in a High Distributed Resource Environment: Distributed Solar as a Case Study," Next-Gen Smart Grid Virtual Summit (December 9, 2020)
- "What Explains the Success of Top Performing States in Energy Efficiency?" NRRI Webinar (August 19, 2020)
- "A Blueprint to Pilot Design: Best Practices and Lessons Learned," MI Power Grid: Energy Programs and Technology Pilots Stakeholder Meeting (April 30, 2020)
- "Policies in Support of Customers' Purchase of Renewable Energy," NARUC Annual Meeting & Education Conference (November 18, 2019)
- "Rate Reform in Evolving Energy Marketplace," EUCI Residential Demand Charges/TOU Summit (May 30, 2019)

- “Grid Modernization: Policy, Market Trends and Directions Forward,” 4th Annual Grid Modernization Forum, Chicago, IL (May 21, 2019)
- “Accelerating the Renewable Energy Transformation: Role of Green Power Tariffs and Blockchain,” EUCI Southeast Clean Power Summit (February 25, 2019)
- “The Case for Alternative Regulation and Unintended Consequences of Net Energy Metering,” 46th Annual PURC Conference, Gainesville, FL (February 21, 2019)
- “Reviewing Grid Modernization Investments: Summary of Recent Methods and Projects,” National Electrical Manufacturers Association (NEMA) (December 4, 2018)
- “Enabling Grid Modernization Through Alternative Rates and Alternative Regulation,” Energy Policy Roundtable in the PJM Footprint (November 29, 2018)
- “Return of Pay-for-Performance Stronger with M&V 2.0,” BECC Conference, Innovations in Models, Metrics, and Customer Choice, Washington DC (October 2018)
- “Rate Design in a High DER Environment,” MEDSIS Rate Design Workshop, Washington DC, (September 2018)
- “Demand Response for Natural Gas Distribution,” Center for Research in Regulated Industries (CRRRI) 31st Annual Western Conference, Monterey CA (June 2018)
- “Status of Restructuring: Wholesale and Retail Markets,” National Conference of State Legislatures Workshop, “Electricity Markets and State Challenges,” Indianapolis IN (June 2018)
- “Dynamic Pricing Works in a Hot and Humid Climate: Evidence from Florida,” International Energy Policy & Programme Evaluation Conference, Bangkok Thailand (November 2017)
- “Understanding Residential Customer Response to Demand Charges: Present and Future,” EUCI Residential Demand Charges Conference, Chicago IL (October 2016)
- “Utility Leaders Workshop: An Evolving Utility Business Model for the Caribbean,” Caribbean Renewable Energy Forum, Miami FL (October 2016)
- “Impact of Residential PV Penetration on Load Growth Expectations,” AEIC Western Load Research Conference, September 2016.
- “Moving away from Flat Rates,” Smart Grid Consumer Collaborative, Chicago, IL (September 2016)
- “Residential Demand Charges: An Overview,” EUCI Demand Charge Conference, Phoenix AZ (June 2016)

- “Conservation Voltage Reduction Econometric Impact Analysis,” AESP Spring Conference, Washington DC (May 2016)
- “Caribbean Utility 2.0 Workshop- Economics, Tariffs and Implementation: The Challenge of Integrating Renewable Resources and After Engineering Solutions,” co-hosted and presented at the Caribbean Renewable Energy Forum, Miami FL (October 2015)
- “Dispelling Common Residential DR Myths,” eSource Conference (October 2015)
- “Low Income Customers and Time Varying Pricing: Issues, Concerns, and Opportunities,” NYU School Law’s Forum on New York REV and the Role of Time Varying Pricing (March 2015)
- “Dynamic Pricing: Transitioning from Experiments to Full Scale Deployments,” EDF Demand Response Workshop, Paris, France (July 2014) and Governors Association’s Michigan Retreat on Peak Shaving to Reduce Wasted Energy (August 2014)
- “Impact Evaluation of TOU Rates when Experimentation is not Option: A Case Study of Ontario, Canada,” 2014 Smart Grid Virtual Summit, Boston (June 2014)
- “Residential Demand Response Opportunities,” Opower Webinar Series, Boston (June 2014)
- “Impact Evaluation of TOU Rates when Experimentation is not Option: A Case Study of Ontario, Canada,” 33rd Annual Eastern CRRRI Conference (May 2014)
- “The Arc of Price Responsiveness—Consistency of Results Across Time-Varying Pricing Studies,” Chartwell Webinar, Boston (May 2013)
- “Evaluation of Baltimore Gas and Electric Company’s Smart Energy Pricing Program,” 9th International Industrial Organization Conference, Boston, MA (April 2011)
- “Dynamic Pricing: What Have We Learned?” Electricity Markets Initiative Conference, Harrisburg, PA (April 2011)
- “Do Smart Rates Short Change Customers,” Demand Resource Coordinating Committee Webinar (December 2010)
- “Opening Remarks and Session Chair of Day 1,” FRA Conference on Customer Engagement in a Smart Grid World, San Francisco, CA (December 2010)
- “The Impact of Informational Feedback on Energy Consumption,” 2010 National Town Meeting on Demand Response and Smart Grid (June 2010)
- “The Impact of In-Home Displays on Energy Consumption,” Colorado Public Service Commission (June 2010)

- “Does Dynamic Pricing Work in the Mid-Atlantic Region: Econometric Analysis of Experimental Data,” Center for Research in Regulated Industries (CRR) 29th Annual Eastern Conference (May 2010)
- “Distributed Generation in a Smart Grid Environment,” panel speaker at the Center for Research in Regulated Industries (CRR) 29th Annual Eastern Conference (May 2010)
- “Power of Information Feedback: A Survey of Experimental Evidence,” Peak Load Management Alliance (PLMA) Webinar (April 2010)
- “Customer Response to Dynamic Pricing - A Long Term Vision,” 2009 NASUCA Mid- Year Meeting, Boston (June 2009)
- “BGE’s Smart Energy Pricing Pilot Summer 2008 Impact Evaluation,” Association of Edison Illuminating Companies (AEIC) Conference, Florida (May 2009)
- “California and Maryland - Are They Poles Apart?,” Western Load Research Association Conference, Atlanta (March 2009)
- “Experimental Design Considerations in Evaluating the Smart Grid,” Smart Grid Information Session Massachusetts DPU (December 2008)
- “Divestiture, Vertical Integration, and Efficiency: An Exploratory Analysis of Electric Power Distribution,” 4th International Industrial Organization Conference, Boston, Massachusetts (2006)