



## Kathleen A. Kelly

Vice President and Principal Consultant

Kathleen Kelly is a management consultant with wide-ranging experience in strategic energy planning. As a director within a major northeastern electric utility, she managed the regulatory participation and transition to a restructured market environment, and as a management consultant, she advises utility executives on business planning in an industry undergoing transformative change. Ms. Kelly is a collaborative leader, managing expert teams to address multiple and diverse client engagements with competing and earnest deadlines while providing superior client relationship management and satisfaction evidenced by a high client return engagement rate. She develops and facilitates strategic planning discussions among senior managers on energy planning, disruptive technologies, and long-term organizational objectives. Her extensive strategic utility experience includes enhancing organizational effectiveness and business processes as well as advising senior managers with regard to technical issues, management and operations, organizational design, and change management. Clients rely on her ability to get things done and her specific expertise in regulatory policy, strategy, and analytics, as well as technical planning and operations issues such as load forecasting, resource planning, asset management analysis, risk analysis and mitigation strategies, power procurement decision-making, technical feasibility studies, wholesale energy markets, and knowledge management. Ms. Kelly has provided expert testimony on regulatory policy, rate design, resource planning, energy forecasting, and DSM initiatives.

### SELECTED PROFESSIONAL EXPERIENCE

#### *Strategy, Business and Energy Planning*

- Developed a report on behalf of the Electric Power Research Institute that investigated the current state of utility integrated resource planning (IRP). This report addressed common approaches to key issues in IRP today - including load forecasts, DSM projections and stochastic planning approaches, how utilities address these issues, and identified emerging areas that are challenging for utilities to address in their IRP approaches.
- For Hoosier Energy Rural Electric Cooperative and for the New York Power Authority, led teams that provided strategic and technical facilitation of the C-level executives as they considered short and long-term opportunities for enhancement to their business model. Services included interviews with key team members to develop a slate of issues for consideration as the team developed strategy, as well as preparing issue workbooks and team meeting approaches to keep discussion and debate moving and to determine actionable plans for implementation.
- Directed the creation of an independent long-term energy plan for several major utilities and customers including Long Island Power Authority, a major upper Midwestern Investor Owned Utility, the Massachusetts Institute of Technology, and the Massachusetts Health and Education Facilities Authority's PowerOptions aggregated buying group. These plans incorporated load forecasts, evaluation of new generation technology, demand response programs, energy efficiency and load reduction programs, new construction, repowering, and renewable resources. Methodologies used in these assignments included traditional planning methods coupled with scenario planning and the incorporation of probabilistic risk to more fully

understand the impact of resource decisions and the risk of resource shortages. These approaches included an assessment of the implications for local and regional economic development and growth.

- Facilitated strategy development for a major east coast developer interested in expanding its renewable energy resource base. For the Iowa Association of Electric Cooperatives, provided technical facilitation and policy development services to a cross-section of 20 representatives from the more than 40 members – resulting in the creation of positions with respect to climate change requirements. The positions and strategies included development of a wide range of approaches to legislative and regulatory policy development on global warming solutions including, in particular, energy efficiency levels and standards, demand response, renewable portfolio standards, and net metering for community resources.
- Provided a strategic plan to the Geothermal Development Corporation of Kenya that provided a long-term market perspective on need for facilities and pricing, ability of the organization to provide the geothermal output to support project development, and identified the improvements in internal and external resources necessary to achieve production potential.
- Directed and completed a three-phase project working with the Iowa Association of Electric Cooperatives. Phase 1 involved the facilitation of a restructuring task force comprised of member cooperatives working together to strategize and formulate their joint restructuring position to be used for regulatory filings, negotiation, and discussion. Phase 2 required both facilitation and technical knowledge and focused on negotiation strategy and implementation of that strategy, resulting in the cooperative association taking a leadership role in state restructuring legislation development. Phase 3 developed and implemented an education series for cooperative managers, directors, and employees to prepare for industry restructuring issues and anticipated market changes whether adopted or rejected.
- Worked with several municipal utilities and joint action power agencies in separate projects to assess the impact of competition on their operations, developed strategies for the businesses to grow, and facilitated the development of implementation plans for successful growth. Facilitated strategic planning sessions for several cooperative and municipal utilities boards to establish strategies for a competitive market framework.
- Reviewed Grid Modernization plans filed by utilities in Massachusetts for the Massachusetts Department of Energy Resources. Work involved analysis of stakeholder recommendations and development of policy positions for the Department.
- As a utility planner, developed short- and long-term projections of energy, demand and revenues for a major northeastern utility for use in rate case reviews, long term resource planning, and business management. Testified in a number of regulatory cases relative to the methodologies and results and participated on management teams to improve our approach.
- As a utility manager, developed early energy efficiency and demand response program plans for incorporation into long term load forecasts and developed the programs for implementation and crafted evaluation plans to assess program savings. Testified before state agencies to present the program development, forecast implications, and support cost recovery approaches for the investments.

### **Rates and Regulation**

- Analyzed and presented testimony on the tariff proposal of PacifiCorp Power in Washington designed to recover lost revenues associated with loss of customers to another distribution utility in an area in which competition was allowed due to an inability to negotiate terms for a

franchise agreement. Provided testimony outlining the need and rationale for regulatory policy to address such stranded costs to ensure equitable treatment for the remaining customers of Pacificorp.

- Critiqued the policies associated with Consolidated Edison's 2016 rate case and directed a team in the review of cost of service and rate design in the electric rate case. Provided testimony on a major cost allocation policy shift that would result in electric customers taking responsibility for gas delivery investment making gas available to independent electric power producers.
- Evaluated the value of solar and associated compensation models and rate design for net metering on behalf of the Maryland Public Service Commission. This effort included reviewing the potential benefits of solar to two cooperative systems, identifying those that should be considered in tariff design, and assessing potential tariff approaches for net energy metering.
- Reviewed the financial surety requirements of the Rhode Island Public Utility Commission and contrasted those to other states with entities responsible for ensuring that energy is delivered when necessary on behalf of contracted customers. This review includes development of regulatory language and processes for review of such entities.
- Contributed to the review of net energy metering (NEM) rate design for the New Hampshire Public Utilities Commission, a case involving three investor owned utilities and several intervenors, hundreds of information requests and responses, testimony, and analytical modeling. Issues included benefits of solar distributed generation for the utilities, equitable treatment of customers, whether sufficient data exists to analyze the impacts of distributed generation and NEM on utility systems and customer costs, and development of a forward-looking approach to address key issues.
- For the Oklahoma Hospital Association, reviewed the Oklahoma Gas & Electric Company proposal for new rates in 2016 and developed information requests, issued memos, and provided testimony on the equity issues associated with the Company's rate increase, offering an alternative revenue allocation and rate approach that allowed the Hospital Associations members to pay full cost of service rates while ensuring the Company could earn its allowed rate of return.
- Reviewed the merger proposal submitted by Dominion Resources and Questar Gas Company seeking approval of the Utah Public Service Commission. Directed a review team investigating the appropriate standards of review for merger approvals in Utah and comparing the proposal to the primary standard that the customers must benefit. Worked with division staff to review and prepare testimony summarizing our findings and offering potential protections and conditions should the commission decide to approve the merger such that utility customers would see benefits. Worked with division staff on strategic direction of the testimony to support settlement discussions. Provided Expert Witness testimony on behalf of the Utah Division of Public Utilities.
- Directed the review of three investor owned utilities' (Eversource Energy, National Grid, and Unitil) grid modernization plans filed in compliance with Grid Modernization, D.P.U. 12-76-B (2014); D.P.U. 12-76-C (2014) with the Massachusetts Department of Public Utilities. Working with the Massachusetts Department of Energy Resources (DOER), the Daymark team reviewed each of the filings in detail and summarized the key components, provided an opinion on compliance with the DPU orders, and continues to work with DOER staff as the review process proceeds. The ten-year plans are required to progress with regard to four key regulatory objectives: (1) reducing the effects of outages; (2) optimizing demand, which includes reducing

system and customer costs; (3) integrating distributed resources; and (4) improving workforce and asset management.

- Directed a technical review of a proposal to implement an Accelerated Pipe Replacement Plan (APRP) by Washington Gas Light (WGL) on behalf of the Washington DC Public Service Commission as part of a rate case submission. This review investigated other accelerated replacement programs and their objectives, evaluated filed testimony, confidential documents, data requests, industry databases, and similar programs at other utilities to determine the appropriateness of WGL's proposal. Directed the drafting of commission staff briefings and ultimately recommended a redirection of the plan's investment to incorporate larger pipe sizes than originally proposed and to focus first on those pipes of an older vintage and located in higher-populated areas.
- For the Virgin Islands Water and Power Authority, completed an independent assessment of the avoided costs for a proposed waste technology generation facility and acted as an arbitrator for project discussions. Updated the avoided cost calculations for both electric and water as the next step in the process.
- For the Washington DC Public Service Commission, directed an assessment of the decision to underground PEPCO distribution assets. Analyzed previously-completed PEPCO investigations and added to the record by corroborating the cost information and offering an independent evaluation of the decision criteria that should be considered by the commission when reviewing such activities. The recommendation was to consider such investments only when there are sufficient infrastructure improvement activities by other utilities or companies in geographically-constrained areas to result in economic investment. Although there was a significant improvement in the reliability of the worst performing circuits, the cost of a system-wide initiative would not be sufficient to justify the investment.
- Directed the development of a portfolio of DSM programs including electric energy efficiency and demand response strategies for Northern Indiana Public Service Company (NIPSCO) for inclusion in its 2007 Integrated Resource Plan (IRP) filed with the Indiana Utility Regulatory Commission (IURC) and sponsored and provided testimony in support of the plan. Also provided a report and support to regulators and stakeholders of NIPSCO's gas efficiency programs during 2006.
- Directed a team of internal and external consultants, serving as technical advisor to the Guam Public Utilities Commission. These engagements addressed both power and water and wastewater utilities. Recommendations on diverse technical regulatory filings included: rate and cost of service, integrated resource plan reviews, revenue bond issuances, net metering programs, review of resource acquisition approaches, adopting energy efficiency and renewables, and whitepapers on time of use rates, feed-in-tariffs, and compressed air energy storage. Managed client relationships with both the commission and the regulated utilities to ensure proper communication of case needs, management of information requests, development of summary memos, and development of final reports for use in commission orders. Recent efforts involved the development of DSM programs with the on-island utility and a review of the electric utility's plans for system expansion.
- Directed and participated in efforts with Newfoundland Labrador Hydro to develop a revised cost of service and to redesign its retail and wholesale rates for several rate cases. Evaluated the potential for supporting regulatory capitalization of startup costs for a Canadian utility. Also investigated and recommended the adoption of conservation programs by its wholesale power customer, Newfoundland Power, through changes in the wholesale pricing structure.

- Advised the CEO of Vermont Electric Cooperative on an appropriate framework for its rate increase request, filed following its organizational improvement review. Recommendations resulted in the adoption of a framework in which the rate increase need was demonstrated by documenting the environment in which VEC was and expected to operate, the costs that had increased or were expected to increase such as union contracts, and the risks and mitigation strategies anticipated or managed to date that had driven the need to increase rates to its members. The filing was held up as an industry standard in the state and the full increase was granted.
- Participated in the application of the FERC Seven Factor Test to distribution and transmission assets for a major Midwestern utility and advised on strategic issues relative to the application.
- Directed rate case analysis and preparation for numerous utilities including NIPSCO, Terasen (formerly Centra Gas British Columbia) a division of Kinder Morgan, Newfoundland Labrador Hydro, Boston Edison, Centra Gas Manitoba, SLEMCO, Fayetteville Public Works, and others.
- For NIPSCO, developed a rate case educational seminar designed to provide cost of service and rate design theories, practices, and precedent to a broad audience including C-level staff, engineering contributors, legal advisors (both internal and external), metering staff, customer service staff, and cost of service and rate design practitioners.
- As Pricing and Marketing Department Manager at Eversource, directed the development of cost allocation methods, retail and wholesale tariffs, and filing requirements for rate cases. Successfully implemented the use of creative utility pricing tactics including economic development rates, customer retention rates, and time of use rates. Positioned the utility as the first in the region capable of regional real-time pricing through negotiated model development and successful customer pilot of hourly day ahead pricing. Educated and trained corporate personnel on pricing strategy, positioning, and tactics. Testified on rate policy changes as part of the industry restructuring investigation led by the Massachusetts Department of Public Utilities. Developed and implemented successful responses to competitive retention challenges with several major customers.

### **Policy and Planning Analysis**

- Evaluated the potential implications of increased distributed generation adoption for a utility association. Through facilitation of collaborative workshops, utility directors and managers attained a greater understanding of the potential opportunities and risks associated with distributed generation adoption and a greater coordination was developed through the forum's discussion of the issues and concerns impacting their members.
- For the Matanuska Electric Association, provided an assessment of alternative generating facility proposals for a rural electric cooperative, by modeling the Alaska Railbelt system using optimization software that supports scenario analysis of multiple resource opportunities to fulfill need. The analysis included assessment of load forecasts, development of hourly production cost modeling of five proposals, plus consideration and impact analysis of two potential system sales options.
- Directed the development of a ten-year forecast of North American copper demand resulting from electric industry expansion in generation, transmission, and distribution segments for the Copper Development Association, which is a business trade association.
- For the Edison Electric Institute, directed the design of a survey of U.S. utilities on implementation of Sarbanes Oxley Regulations in their organizations. Interviewed 15 CEOs and

more than 75 C-Level officers to obtain their estimate of the costs, staffing impacts, concerns, and policy changes resulting from passage of the law. Prepared and delivered a report for CEOs and for the C-level staff and EEI to provide to its membership and presented the results to EEI.

- Conducted a strategic business assessment of ownership and operations options for the First Church Christ Scientist's district cooling plant. Completed an economic and strategic assessment of the facility's operations, identified the range of possible business solutions and alternatives to current ownership and operation of the facility, estimated the financial impact to institution of various alternative options, and recommended a business plan for the facility.
- Key representative for Boston Edison's electric industry restructuring plan, evaluating strategic financial, operational, and customer impacts of the proposed plan and building consensus both within and outside the corporation. Participated in the team that negotiated solutions with regulators and third parties resulting in settlement of major issues. Identified the structure and resources necessary to meet the demands of the new competitive energy market. Developed strategies for business infrastructure implementation and coordinated regulatory strategy and witness preparation. Expert witness on rate design, implementation issues, and customer education requirements. Company representative on industry working groups investigating and negotiating statewide restructuring issues and the public spokesperson with area trade associations, businesses and customers on industry restructuring.

### **Renewable Energy**

- Provided technical, regulatory, and project management support for the development of a Request for Proposal (RFP) for 50 MW of geothermal resources on the Big Island of Hawai'i for Hawaii Electric Light Company. Managed an internal team in the development of RFP parameters; prepared filing documents for the public utility commission review process; organized and prepared responses to bidder, public, and regulator questions regarding the RFP approach and documentation; developed and organized a webinar bidder meeting to ensure that all parties had access to information; developed the bid evaluation approach and managed its implementation; communicated with senior management on ultimate bidder selection and risk considerations.
- Completed a market assessment for a confidential equity investor interested in potentially acquiring a percentage of a renewable energy generation facility on the island of Hawaii. Analysis included a full description of the market realities in Hawaii, such as potentially market-altering plans to transition existing generation facilities to burn LNG and continuation of the broad adoption of distributed solar photovoltaic systems. The independent market assessment report provided, for all post-PPA years, a projection of annual weighted average energy market pricing, the potential market revenues of the asset, and the potential operational profile of the facility under a range of future market assumptions, including unit curtailment potential.
- Managed the process and development of technical content for an RFP for renewable energy on the island of O'ahu for Hawaiian Electric; the RFP would also consider off-island sources with an undersea cable. Managed document development including internal utility staff comments and information, filings for the Hawaii Public Utilities Commission, responses to information requests from potential bidders and interested parties, and preparation and execution of an on-site bidder meeting to describe the process, need, proposal requirements, and policies of the commission.
- Provided an independent market advisory and valuation assessment for a confidential client's investigation into potential acquisition of several biomass-fueled generation resources in the

New England and California power markets. Provided insight into the U.S. power industry, including specifically, the wholesale power markets and Renewable Energy Credits (RECs) markets for both of these regions, as well as the related fuel supply markets in New Hampshire and California for wood-waste biomass. Identified potential risk implications for each of the three facilities, based on the U.S. market trends and the future of REC markets.

- Worked with a cross-functional team of managers at Constellation Energy to support the development of a renewable energy strategic plan by providing technology information and regulatory and market information by state and by North American region. Facilitated strategic planning workshops developing and documenting recommended market approaches.

### **Procurement/Market Analysis**

- Directed the competitive positioning analysis of more than 50 generation units or portfolios using industry standard economic and bid-based dispatch models to develop market prices for regions and for locational pricing. For example, directed the development of a portfolio market analysis for a major investor that included more than 12 plants in eight different U.S. markets that established competitive position of each unit, based on the forecasted market or PPA revenues, operating costs, and market risks.
  - Assets analyzed for potential asset transactions include electric generation, electric and gas transmission and distribution systems, steam systems, and competitive businesses such as product and service businesses or retail energy companies.
- For several confidential clients, directed cross-functional teams investigating the potential profitability of acquisitions of generation assets located throughout Canada and the U.S. For these clients, the team developed potential revenues, identified regulatory and market risk factors, developed mitigation strategies for these risks, prepared reports for financing support and worked with diverse advisory teams to prepare documents for investment board approval.
- For the Tuxpan V project in Mexico, directed a review of existing market information to develop a market-based revenue projection. This review included seeking out and reviewing regulatory reports on market regulatory changes and development of IPPs, reports on market potential from a number of sources, and discussion with market participants to assess their market knowledge.
- For an independent investment firm, reviewed the power procurement plans for a new process plant in Texas, providing independent recommendations for a phased-in approach to acquire necessary power in a tight ERCOT market. Met with the ownership consortium to discuss the recommendations and worked with the team through the first phase.
- Worked with Massachusetts PowerOptions to assess alternative resource procurement strategies for an aggregated group of customers with more than 500 MW of electricity consumption. Evaluated the ability to offer green power solutions to its customer group as well as the opportunity to participate in equity ownership of green facilities.
- Worked with the Rhode Island League of Cities and Towns in the development and issuance of an RFP representing the load-following interests of a group of 37 municipalities in Rhode Island. Directed RFP development and participated in the review of proposals and the negotiations for the final award of contract. Involved with this client's competitive procurement of electricity, issuing four separate RFPs, since 1998.
- For BG Group, investigated market issues, regulatory issues, and operational plans of a portfolio of generation assets throughout the world, including India, Italy, England, the U.S., and Ireland

to provide an independent critical review for management of the projected proformas of each asset.

- Advised several confidential clients in the assessment of opportunities, risks, and financial alternatives in consideration of acquisitions. For Tyr Energy, directed a team of experts in the development of an independent market investigation to support acquisition of assets in the MISO footprint.
- Provided generation output and revenue projections to support appraisal reports of traditional generation and renewable generation in all of the North American markets.

### **Management Consulting and Strategic Planning**

- Participated in business process improvements throughout career, providing independent reviews for clients and advising teams working within their own organizations to improve work flow and information security.
- For a large Generation and Transmission Cooperative, asked by the CEO to investigate and provide advice relative to concerns over the investment decision-making process for numerous alternative energy facilities. Team interviewed all senior staff involved in the process and developed process flows for comparison to standardized decision-making and project management techniques used by the organization. Recommendations shifted corporate responsibility for investment decisions, moved project management responsibility to a separate team, modified the accounting process and reporting requirements, and established key performance indicators that were designed to quickly flag errant projects. The report recommended that certain projects be sold to reduce losses and that others be halted or significantly modified to reduce risk to the organization.
- For Scotia Bank, directed a business management review of a large pipe manufacturing organization to advise an investor relative to recent losses and the potential that such losses were directly related to poor business processes, management, and decision-making. Directed a team of investigators as they reviewed management reports and documentation, interviewed the president and C-level staff as well as staff throughout the organization. Visited operational facilities to observe work flow and sampled specific “client engagements” that were reviewed from sales call through order installation and commissioning and through closure of the records at the organization. The findings included several concerns that, if not addressed, could lead to future losses. The report offered a significant number of organizational structure modifications, personnel changes, management process improvements, communication and reporting enhancements, and extensive sales and product development modifications.
- Directed a team of Lummus Consultants and Hoosier Energy, REC, Supply Chain professionals in the development of a new process for the organization to follow when obtaining strategic equipment and services. This required the development of standard tools for the users including a SharePoint site upon which all procedures and process support documentation resided, the development of a new client outreach program in which the manager of the supply chain area would regularly interact with other managers and users to provide information about their services and to gather information for improvements, benchmarking of services internally including a dashboard summarizing – for the organization as a whole, by division and by department – the service guarantee and metrics demonstrating ability to meet the guarantee on a monthly or quarterly basis, as needed. The system was well received and was developed with a significant level of user input.



- Directed an assessment of the process and organizational effectiveness for a major Midwestern cooperative including corporate services and plant management and operations for a 1,000 MW coal-fired facility. This engagement resulted in recommendations for immediate and longer-term process and organizational improvements, culture change requirements, and implementation and monitoring plans to achieve success. Since the initial assessment, directed three follow-on evaluations, intended to monitor the organization's progress toward achieving success, and, as a result, making recommendations for improvement and for areas not originally addressed.
- Worked with Senior Management of Nova Scotia Power Company to provide advice and counsel relative to their ability to achieve productivity gains and efficiencies in the management and operations of their generation facilities. The review included management talent, standardization of processes, use of procedures, common planning and reporting, and approaches to work management and planning. Recommendations included a greater focus on asset management and an implementation plan that would move the company forward toward centralized asset decisions and implications of emission control strategies on operations and asset life.
- Directed a detailed mapping of the "request for new service" business processes for New Hampshire Electric Cooperative using facilitated collaborative cross-functional teams together with one-on-one interviews to develop the numerous related and contributory processes. This effort identified numerous risky process-related activities, including duplicative databases – which increased the risk of errors in financial reporting – lack of a single process management tool to ensure that no customer was dropped mid-stream, ineffective communication across the organization, an internal focus that left customers in the dark and frustrated, and a lack of closure to the process resulting in poor records management and potential for unsecure customer information. The team produced a series of process maps showing the "as is" that were used to collaboratively create the "what should be" and establish consensus approaches to implementation. This process touched nearly every area of the organization including numerous field operations departments, customer communications, accounting, financial reporting, and purchasing, planning, and senior management.
- Directed a team of professionals to review and evaluate the efficiency and effectiveness of the management and business processes of the third largest utility in Vermont, Vermont Electric Cooperative, which included working with the utility board of directors, senior management, utility staff, and regulators. The effort was significant in that regulators were seriously considering the need to seek new ownership or a complete new management team. The effort and intervention resulted in a turnaround that has created a new relationship with regulators. The team prepared a report providing a detailed discussion of the methodology, findings, conclusions, and recommendations to improve efficiency, management, operations, communication, regulatory relationships, culture, and member relations.
- Completed a review of the distribution planning and reliability of a major Northeastern IOU; evaluated the business processes and procedures used for distribution system planning and the resulting contribution to reduced or increased reliability. These efforts also assessed the philosophy of distribution planning and reliability as well as evaluating the procedures, processes, systems, and results for reporting to the utility's regulators and audit team.
- Directed a "sales process" review for a major EPC process firm, interested in reducing the time and cost to develop a customer from lead to close. Using an interviewing approach that was typically one-on-one with the C-level staff and several group sessions with production

organizations, interviewed nearly 300 contributors in two months. The process mapping identified several concerns: lack of standardization in the use of the process in some cases to the fact that the process was not sufficiently external facing. The nature of the process had become too internally focused using too many “gates” to control development costs resulting in poor client focus. This lack of client focus reduced the necessary attention to client needs required to win a project. The recommendations covered a wide variety of changes: cultural focus, fear of failure and retaliation, duplication of effort, lack of clarity, focus on procedure and not clients, and over-standardization required in the process.

- Completed an evaluation of the implementation progress relative to a prior consultants’ report on transmission and distribution improvements needed in the planning, construction, reporting, and IT areas of a Canadian crown corporation.
- Directed the review and comparison to market of an east coast water utility’s salary structure.
- Worked with a major west coast water utility to identify cost reduction opportunities and provided regulatory strategy on cost of service issues.

## EMPLOYMENT HISTORY

<b>Daymark Energy Advisors Inc.</b> <i>Vice President &amp; Principal Consultant</i>	Boston, MA February 2016 – Present
<b>Lummus Consultants International, Inc.</b> (formerly Stone & Webster Management Consultants) MA <i>Director and Practice Lead, Utility and Strategy Practice (March 2001 – 2015)</i> <i>Executive Consultant (March 1997 – February 2001)</i>	Boston, MA 1997 – 2015
<b>Boston Edison Company</b> (currently Eversource) <i>Director, Regulation and Restructuring</i> <i>Rates and Marketing Manager</i> <i>Manager of DSM Evaluation</i> <i>Manager of DSM Planning and Forecasting</i> <i>Division Manager of Rate Design</i> <i>Division Manager of Demand and Revenue Forecasting</i> <i>Forecasting Analyst, Senior Analyst</i> 1979	Boston, MA 1994 – 1997 1991 – 1994 1987 – 1991 1985 – 1987 1983 – 1985 1979 – 1983 1977 –

## EDUCATION

<b>Northeastern University</b> <i>M.B.A., Finance</i>	Boston, MA
<b>University of Massachusetts</b> <i>B.S., Mathematics</i> <i>A.B., Economics (Summa Cum Laude)</i>	Boston, MA

## PROFESSIONAL TRAINING & SKILLS

Negotiation Skills for Executives  
Proficient in MS Office and knowledgeable in energy market simulation modeling programs.

## PUBLICATIONS, PRESENTATIONS & TESTIMONY

### *Expert Testimony*

<b><u>Forum</u></b>	<b><u>On Behalf of:</u></b>	<b><u>Topic</u></b>
Washington Utilities and Transportation Commission	Washington Office of the Attorney General	Testimony on Treatment of Distribution Stranded Costs in Competitive Situations and Tariff Proposal of PacifiCorp in Docket UE-161204
Utah Public Service Commission	Utah Public Service Commission Division Staff	Testimony for the Financial and Operational Evaluation of Dominion Resources Proposed Acquisition of Questar Gas Company Docket Number 16-057-01
New York State Department of Public Service	New York State Department of State Utility Intervention Unit	Testimony on Policy with Regard to Allocation of Gas System Costs to Electric Customers in Consolidated Edison Rate Case 16-E-0061
Oklahoma Corporation Commission	Oklahoma Hospital Association (OHA)	Testimony with respect to aspects of Oklahoma Gas & Electric proposed revenue allocation and rate design and the impact of these on the OHA members. Cause No. PUD 201500273
Indiana Utility Regulatory Commission	Indiana & Michigan (I&M)	I&M DSM Plans, Incentive Structure and Cost Recovery, and Speed of Program Adoption, Cause No. 43306, October 2008
Indiana Utility Regulatory Commission	Northern Indiana Public Service Company (NIPSCO)	DSM Cost Recovery and Incentive Proposal, Cause No. 43618 December, 2008
Massachusetts Department of Public Utilities	Eversource (formerly Boston Edison Company)	Review of Boston Edison's Electric Restructuring Plan, Testimony on Rate Plan, D.P.U. 96-23, 1996 - 1997
New Jersey Board of Public Utilities	New Jersey Board of Public Utilities Audit Staff	Investigated and audited utilities electric restructuring. Provided testimony regarding findings and recommendations for improvement. Rockland Electric Company, Restructuring Plan Aspects, Docket No. EA97060398
Massachusetts Department of Public Utilities	Eversource (formerly Boston Edison Company)	Investigation into Industry Restructuring, Testified and Participated in Technical Sessions on Policies, Planning, Issues and Rate Design including Real Time Pricing, D.P.U. 95-30, 1995 -1997.
Massachusetts Department of Public Utilities	Eversource (formerly Boston Edison Company)	Testified in support of DSM Planning and Savings, Budgets, DSM Cost Recovery and Incentive Plan, DSM Monitoring and Evaluation Plan, D.P.U. 90-335, 1990-1992.
Massachusetts Department of Public Utilities	Eversource (formerly Boston Edison Company)	Testified in D.P.U. 89-100 in Support of Rate Changes, 1989 - 1990
Massachusetts Department of Public Utilities	Eversource (formerly Boston Edison Company)	Periodic testimony relative to DSM implementation plans and forecasts as part of the Company's long term resource planning, evaluation results and cost recovery projections and reconciliations. 1985 -

<u>Forum</u>	<u>On Behalf of:</u>	<u>Topic</u>
		1994
Massachusetts Energy Facilities Siting Council	Eversource (formerly Boston Edison Company)	Periodic testimony to support long term energy and demand forecasts. 1979 – 1984

### ***Publications & Presentations***

*Renewable Energy – Innovative Approaches to a Win-Win Renewable Solution, Paper presented at Renewable Energy World, December 2014.*

*Energy Efficiency – Providing Equivalent Incentives to Utilities, Presented to the RKS Research & Consulting Energy Efficiency Seminar, Dallas TX, March 2008.*

*Organizational Improvement – Strategies and Tactics, Presented to the CEO Conference, National Rural Electric Cooperative Association, Phoenix, AZ, January, 2006.*

*Cooperative Restructuring Issues, Paper presented at the 10Th National Energy Services Conference, Tucson, AZ, December, 1999.*

*Issues and Trends in Pricing, Professional Pricing Society, Annual Conference, Chicago, IL, October 1995.*

*Selling Evaluation, Sixth International Energy Program Evaluation Conference, August 1993. Published.*

*A Brief History of a Measurement and Evaluation Department: Boston Edison Company, Edison Times, IRP Quarterly, April 1993.*

*Competition in the Energy Markets and its Impact on IRP, National Association of Regulatory Utility Commissioners (NARUC), May 1993.*

*Managing Evaluations, ACEEE Summer Study Program 1992. Published.*

*Several Industry Restructuring speaking engagements.*

*Several DSM speaking invitations, 1985 - 1994.*

*Several Forecasting speaking invitations, 1980 - 1984.*

*Numerous publications on such subjects as Demand Planning Process, Conservation and Load Management, DSM Monitoring, Evaluation, Forecasting, and Business Planning.*



## Suman Gautam, Ph.D.

Economist and Senior Consultant

Suman Gautam recently joined Daymark Energy Advisors bringing electricity market and energy economics experience. Dr. Gautam's expertise includes using SAS, Stata, and R to manage large scale datasets, test econometric and forecasting models, and perform cost-benefit analysis. He has worked on research projects and papers relating to energy policy and regulation impacts, demand-side management programs, customer segmentation, and electricity price patterns. Before joining Daymark, Dr. Gautam was a team lead and consultant at DNV GL focusing on analysis of energy efficiency program performance.

Dr. Gautam has a Ph.D. and an M.S. in Energy Economics from Pennsylvania State University, as well as a B.A. in Physics and Economics from Illinois Wesleyan University.

### SELECTED PROFESSIONAL EXPERIENCE

#### *Policy Advisory and Research*

- **Evaluation of Energy Efficiency Programs:** Analyzed the impact of energy efficiency programs qualitatively and quantitatively to evaluate the implementation process, assess participation satisfaction, and estimate energy savings. The process evaluation method consisted of in-depth-interviews of program managers, implementers, and participants. Energy efficiency savings were estimated through rigorous statistical and econometric models. The efforts included creating a dataset by combining information on electricity usage, efficiency programs, and weather, accounting for weather-dependent consumption, and then estimating efficiency related savings with the help of difference-in-difference models.
- **Customer Segmentation Analysis in Energy Efficiency Landscape:** Led an effort to enhance utilities' market analysis capability by building and understanding energy efficiency program participation and performance metrics. The process involved combining customer information from utilities with third-party data with the help of character and logic-based matching. The database was used to create metrics with the goal of comparing program performances across different groups of customers by size, type, and other firm-o-graphic characteristics. The analysis provided insights for utilities regarding their targeting of new participants to obtain deeper energy savings.
- **Customer Database Building and Profile Reports:** Developed and managed very large and complex utility data sets for both Commercial and Residential customers of Massachusetts with the help of SAS and SQL using the Extract, Transform, and Load (ETL) process. Responsible for creating a process for effectively loading, cleaning, performing quality checks, and integrating hundreds of raw data files into a single, standardized database. The profile reports included results from exploratory data analysis.
- **LED Spillover Analysis:** Conducted analysis of potential spillover and free-ridership savings associated with LED lighting programs for Commercial and Industrial customers. The research process also included identifying key market elements for higher rate of LED adoption, LED products purchase and customers' lighting purchase decision making processes.

## **Selected Academic Research**

- **Evaluation of Emergency Demand Response Programs:** Analyzed the impact of Vermont Green Mountain Power's (GMP) emergency Demand Response (DR) programs on residential customers' electricity consumption during a two-year pilot program in 2012–2013. The analysis examined potential peak load reductions, monthly electricity consumption, and persistence of response with the help of difference-in-difference approaches. The final dataset included 30 million observations comprising of hourly electricity load, critical peak event information, and weather variables.
- **Impact of Renewable Portfolio Standards in reducing carbon emissions:** The project analyzed the effect of renewable portfolio standards (RPS) – a state level policy that requires utility companies to include a minimum percentage of renewable or “alternative” electricity – on carbon emissions and how this impact varies with the RPS characteristics. The analysis used a reduced form econometric analysis with state fixed variables and time fixed effects. In addition, the project addressed the possible selection problem of a state's decision to adopt and design its RPS policy with the help of three-part Heckit model.
- **Competitiveness of Restructured Electricity Markets:** Studied the impacts of market restructuring and competition on CO<sub>2</sub> emission in the Pennsylvania, New Jersey, and Maryland (PJM) region. Performed literature search, created database, and crafted SAS programs to clean and combine large scale datasets. The database consisted of plant-level generation and emissions information sourced from the US Energy Information Agency and Environmental Protection Agency.
- **Analysis of electricity prices and demand with Extreme Value Theory:** Completed extensive analysis and authored a paper relying on extreme value theory (EVT), a widely-used concept in the financial market, to analyze demand and price patterns to predict future extreme events in the United States electricity market. For each year's hourly data of electric companies, the analysis estimated generalized extreme value (GEV) distribution parameters with the goal of comparing them over both time and market regions. Moreover, the paper accounted for the time dependencies, seasonality, and near-time clustering present in electricity load and prices due to its distinctive features of non-storability and highly correlated observations through the application of autoregressive conditional heteroskedastic models.
- **Fuel Supply modeling:** Developed a theoretical model to optimize fuel procurement design for coal and gas purchases.
- **The Political Economy of Monitoring and Enforcement in the Coal Mining Industry:** Study analyzing the relationship between lobbying contributions and monitoring and enforcement outcomes in the coal mining industry. The effort included creating a dataset combining the inspections and violations for coal mines from the Mine Safety and Health Administration with lobbying expenditure data from the Center for Responsive Politics and using the analytical resources of SAS and STATA.

## EMPLOYMENT HISTORY

<b>Daymark Energy Advisors, Inc.</b> <i>Economist and Senior Consultant</i>	Boston, MA Dec. 2016 – Present
<b>DNV GL</b> <i>Energy Consultant, Policy Advisory and Research</i>	Burlington, MA 2014 – Nov. 2016

## EDUCATION

<b>The Pennsylvania State University</b> <i>Ph.D., Energy Economics</i>	State College, PA 2014
<i>M.S., Energy Economics</i>	2012
<b>Illinois Wesleyan University</b> <i>B.A., Physics and Economics (Honors)</i>	Bloomington, IL 2010

## SELECTED PAPERS & PRESENTATIONS

### *Working Papers*

- Analysis of Electricity Demand and Price patterns of the United States Electricity Sector.
- The Effectiveness of Renewable Portfolio Standards in reducing Carbon Emissions in the US Electricity Markets.

### *Conference Proceedings*

- Davis, A., R. Crowley, S. Gautam, R. Hastings, and W. Brougher (2016). *Beyond participation and savings leveraging quantitative metrics for insight into C&I project and population trends*. 2016 ACEEE Summer Study on Energy Efficiency in Building. [Link](#).
- Gautam, S. and S. Blumsack (2015). *Residential Customers Response to Critical Peak Events of Electricity: Green Mountain Power Experience*. 2015 IEPEC Conference. [Link](#).

### *Presentations*

- International Symposium on Forecasting, Santander, Spain, 2016.
- International Energy Program Evaluation Conference, Long Beach, CA, 2015.
- 37th International Association for Energy Economics, New York, NY, 2014.
- American Economic Association Annual Meeting, Philadelphia, PA, 2014.
- 83rd Southern Economic Association Conference, Tampa, FL, 2013.
- Energy Environmental Economics and Policy Seminar, Penn State, 2013.
- 32nd US Association Energy Economics Conference, Anchorage, AK, 2013.
- Energy & Mineral Energy Engineering Colloquium, Penn State, 2012.
- 82nd Southern Economic Association Conference, New Orleans, LA, 2012.
- 31st US Association Energy Economics Conference, Austin, TX, 2012.



## **SKILLS AND EXPERTISE**

Microeconomics, Econometrics, Energy Policy and Regulation, Electricity Markets, Energy Efficiency, Impact Evaluation, Forecasting, Statistics, SAS, Stata, and R.

## **PROFESSIONAL MEMBERSHIPS**

- Member, International Institute of Forecasters (2016)
- Member, Association of Environmental and Resource Economics (since 2012)
- Member, American Economic Association (since 2012)
- Member, International Association for Energy Economics (since 2011)