

**SUSAN F. TIERNEY, Ph.D.**  
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Dr. Tierney, a Senior Advisor at Analysis Group, is an expert on energy economics, regulation and policy, particularly in the electric and gas industries. She has consulted to businesses, government, tribes, environmental groups, and other organizations on energy markets, economic and environmental regulation and strategy, and energy projects. Her expert witness and consulting services have involved market analyses, wholesale and retail market design, contract disputes, resource planning and procurements, regional transmission organizations, the siting of electric and gas infrastructure projects, electric system reliability, ratemaking for electric and gas utilities, clean energy resources, climate change and carbon-emission-reduction policy, and other environmental policy and regulation. She has participated as an expert in civil litigation cases, regulatory proceedings before state and federal agencies, and business consulting engagements.

Previously, she served as the Assistant Secretary for Policy at the U.S. Department of Energy. She was the Secretary for Environmental Affairs in Massachusetts, Commissioner at the Massachusetts Department of Public Utilities, Chairman of the Board of the Massachusetts Water Resources Authority, and Executive Director of the Massachusetts Energy Facilities Siting Council.

Dr. Tierney has authored numerous articles and speaks frequently at industry conferences. She serves on a number of boards of directors and advisory committees, including chairing the External Advisory Council of the National Renewable Energy Laboratory (NREL), chairing the board of ClimateWorks Foundation, and chairing the Department of Energy's Electricity Advisory Committee. She is a director of the World Resources Institute, Resources for the Future, the Alliance to Save Energy, the Energy Foundation, and the Keystone Center. She is a member of the advisory council of: New York University's Policy Integrity Institute; Duke University's Nicholas School for the Environment; Columbia University's Center for Global Energy Policy; and the New York Independent System Operator (NYISO). She is a member of the National Academy of Sciences Committee on "Enhancing the Resilience of the Nation's Electric Power Transmission and Distribution System." She recently co-chaired the NAESB Gas-Electric Harmonization Committee; co-chaired the Bipartisan Policy Center's project on cyber security and the electric grid, and the BPC's Energy Project; was a member of the National Academy of Sciences panel on shale gas risk; and was co-lead author of the energy chapter of the National Climate Assessment. She chaired the Policy Subgroup of the National Petroleum Council's *Prudent Development* study of the natural gas and oil resource base in North America, and served on the U.S. Secretary of Energy Advisory Board (and its Shale Gas Subcommittee). Previously, she chaired or co-chaired several non-profit organizations (the National Commission on Energy Policy; the Electricity Innovations Institute; and the Massachusetts Ocean Commission); was formerly a director of several public companies (EnerNOC; Evergreen Solar; Zegen; Catalytica Energy Systems) and of several non-profit organizations (Clean Air Task Force; Clean AirCool Planet; the Electric Power Research Institute (EPRI)). She taught at the Department of Urban Studies and Planning at MIT and at the University of California at Irvine, and has lectured at Harvard University, Yale University, New York University, Tufts University, Northwestern University, and University of Michigan. She received NARUC's Mary Kilmarx Award in 2015. She earned her Ph.D. and M.A. in regional planning at Cornell University and her B.A. at Scripps College.

## EDUCATION

- 1980            Ph.D., Regional Planning, Public Policy, Cornell University
- 1976            M.A., Regional Planning, Public Policy, Cornell University
- 1973            B.A., Art History, Scripps College (studied political science at  
L'Institute d'Etudes Politiques, Paris, France)

## PROFESSIONAL EXPERIENCE

- 2003-present    Analysis Group, Inc., Boston, MA and Denver, CO  
*Senior Advisor (April 2014 – present); Managing Principal (July 2003 – March 2014)*
- 1999-2003      Lexecon, Inc., Cambridge, MA (formerly The Economics Resource Group, Inc.)  
*Senior Vice President*
- 1995-1999      Economics Resource Group, Inc., Cambridge, MA  
*Principal and Managing Consultant*
- 1993-1995      U.S. Department of Energy, Washington, DC  
*Assistant Secretary for Policy*
- 1991-1993      Commonwealth of Massachusetts, Executive Office of Environmental Affairs, Boston  
*Secretary of Environmental Affairs*
- 1988-1991      Commonwealth of Massachusetts, Department of Public Utilities, Boston, MA  
*Commissioner*
- 1984-1988      Commonwealth of Massachusetts, Energy Facilities Siting Council, Boston, MA  
*Executive Director*
- 1983-1984      Commonwealth of Massachusetts, Executive Office of Energy Resources, Boston, MA  
*Senior Economist*
- 1982-1983      Commonwealth of Massachusetts, Energy Facilities Siting Council, Boston, MA  
*Policy Analyst*
- 1982            National Academy of Sciences, Washington, DC  
*Researcher*
- 1978-1982      University of California at Irvine, Irvine, CA  
*Assistant Professor*

## SELECTED CONSULTING EXPERIENCE

- **Various confidential engagements** involving power sales agreements, gas supply contracts, advisory services on gas and electric matters, transmission policy, oil market issues, water utility issues, and market power and monitoring issues.
- **Entergy Vermont Yankee**  
Provided expert testimony before the Vermont Public Service Board on the public benefits of the proposed sale of Vermont Yankee to NorthStar (2016-2017).
- **Dominion Energy**  
Analyzed the implications for carbon emissions and consumer costs of a hypothetical shutdown of the Millstone Nuclear Station in Connecticut (2017).
- **Protect the Granite State**  
Analyzed the economic implications of the proposed Northern Pass Transmission project for New Hampshire and New England (2017).
- **Environmental Defense Fund**  
Authored a white paper on challenges facing the U.S. coal industry in the 21<sup>st</sup> Century (2016).
- **Merck Family Fund**  
Co-authored a white paper on potential design issues relating to trading of carbon-emission credits between RGGI states and other states under the U.S. EPA's Clean Power Plan (2016).
- **Consolidated Edison and Southern California Edison**  
Authored a white paper on the role of distributed energy resources in distribution utility planning and operations (2016).
- **Hawaii Gas Company**  
Provided expert testimony before the Hawaii Public Utilities Commission on issues related to the proposed merger of the Hawaii Electric Companies and NextEra (2015-2016).
- **The Energy Foundation and Merck Family Fund**  
Co-authored report on the economic impacts of the Regional Greenhouse Gas Initiative's (RGGI's) second three years of implementation during 2012-2014. (2015).
- **State of Delaware**  
Provided expert testimony before the Delaware Superior Court on issues related to the impact of the Regional Greenhouse Gas Initiative on electricity customers and the economy in Delaware (2015; 2016).
- **NEXUS Gas Transmission**  
Co-authored a report on the market for natural gas in the state of Ohio (2015).
- **Electric Power Supply Association**  
Co-authored a report for EPSA on the design of State Plans so as to align with organized wholesale markets in response to the U.S. Environmental Protection Agency's Proposed Clean Power (2015).
- **Baltimore Gas and Electric, Pepco Holdings Inc. and PHI's affiliates Pepco, Delmarva Power, and Atlantic City Electric**  
Provided expert testimony before the Federal Energy Regulatory Commission on the need for and risks associated with transmission investment (2015).

- **Exelon Generating Company LLC**  
Analyzed alternative generation technologies and the consistency of Exelon's proposal to construct a natural-gas fired peaking unit with Massachusetts energy and environmental policies (2015).
- **The Energy Foundation**  
Co-authored reports on reliability issues related to the U.S. Environmental Protection Agency's proposed Clean Power Plan. (2014-2015).
- **New England Power Generators Association**  
Analysis of the impact of legislative proposals in Massachusetts to direct electric utilities to enter into long-term power supply agreements with Canadian hydropower companies. (2014, 2015).
- **Spectra Energy**  
Provided expert report in Maine regulatory proceeding relating to the potential for the State of Maine to enter into a contract to support natural gas pipeline infrastructure in New England (2014).
- **The Energy Foundation and Merck Family Fund (2014)**  
Co-authored report on the consumer impacts of the U.S. Environmental Protection Agency's proposed Clean Power Plan. (2014).
- **Exelon Corporation and Pepco Holdings, Inc.**  
Analyzed customer and state economic benefits of the proposed merger (2014-2015).
- **Major electric utility**  
Conducted independent review of the company's internal customer and shareholder analyses of long-term resource options (2014).
- **Major merchant generating company**  
Conducted valuation of assets (2014).
- **Entergy Wholesale Commodities**  
Provided strategic advice on wholesale and retail market issues in the Northeast power markets (2013-2016).
- **Hualapai Tribe**  
Provided strategic advice regarding energy resource development and valuation of electric transmission rights of way (2014-present).
- **Barr Foundation**  
Prepared a report on the impacts of the Massachusetts Green Communities Act of 2008 on the Massachusetts economy. (2013-2014).
- **Five California Utilities (LADWP, PG&E, SCE, SDG&E, SMUD)**  
Served on the four-person expert Independent Advisory Panel for the third-party study of integration of renewable energy into California's Electric System ("Investigating a Higher Renewables Portfolio Standard in California"). (2013-2014).
- **State of Colorado**  
Prepared expert report on behalf of the three public utility commissioners in Colorado, in support of the complaint against them on implementing Colorado's renewable energy standard under alleged violations of interstate commerce clause. (2013-2014).
- **Energy Foundation**  
Wrote white paper on the implications for electric system reliability of the Environmental Protection

Agency's implementation of its authority under Section 111(d) of the Clean Air Act, to regulate greenhouse gas emissions from existing power plants. (2013-2014).

- **Major engineering, construction and project-management company**  
Prepared an expert report on electric market conditions in a dispute surrounding cancellation of a major power plant (2012-present).
- **Ambri (battery company)**  
Analyzed energy system issues related to integration of renewables on a military base (2013-2014).
- **Advanced Energy Economy Institute**  
Facilitated workshop for state utility commissioners in Midwest states, on advanced energy technologies and related regulatory issues (2013)
- **Environmental Defense Fund – North Carolina**  
Testified on energy efficiency program design issues (2013).
- **Advanced Energy Economy Institute (with the New England Clean Energy Council and the New England Conference of Regulatory Utility Commissioners)**  
Supported workshop on advanced energy technologies and related regulatory issues. (2013)
- **Lawrence Berkeley National Laboratory Energy Program**  
Support on regulatory issues at workshop for the New Jersey Board of Public Utilities on smart grid issues. (2013)
- **Advanced Energy Economy Ohio**  
Testimony before the Ohio Senate Public Utilities Committee in support of the Ohio Energy Efficiency Resource Standard. (2013)
- **Pepco Holdings Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**  
Testimony in support of appropriate incentives for investment in electric transmission. (2013)
- **Baltimore Gas and Electric Company**  
Testimony in support of appropriate incentives for investment in electric transmission. (2013)
- **Advanced Energy Economy Institute**  
Survey of CEOs of advanced energy companies doing business in California, with regard to the state's energy and environmental policies. (2012-2013)
- **NSTAR and Cape Wind**  
Testimony in support of the long-term power purchase agreement of NSTAR and Cape Wind. (2012)
- **Energy Foundation**  
Strategic planning for the China Sustainable Energy Program. (2012)
- **Pacific Gas & Electric Company**  
Testimony on ratemaking issues for PG&E's proposed pipeline safety enhancement plan. (2012)
- **COMPETE Coalition**  
Testimony on energy efficiency as part of the performance of state and wholesale electric markets in New Jersey. (2011)
- **Compressed Air Energy Storage Company**  
Confidential engagement to analyze regional wholesale markets for baseload and renewable energy

power generation. (2011)

- **Merck Family Foundation**  
Analysis of the economic impacts of the funds collected through the auction of allowances under the Regional Greenhouse Gas Initiative. (2011)
- **American Clean Skies Foundation Corporation**  
Analysis of the reliability and air emission issues associated with potential retirement of the Potomac River Generating Station. (2011)
- **Colorado Public Utilities Commission**  
Analysis of the Colorado solar photovoltaic incentive program. (2011)
- **Exelon Corporation and Constellation Energy (Baltimore Gas & Electric)**  
Analysis of the economic impacts on the Maryland economy associated with the proposed clean-energy commitments tied to the proposed merger of Exelon and Constellation Energy. (2011-2012)
- **New England Power Generators Association**  
Analysis of competition issues associated with the proposed merger of Northeast Utilities and NSTAR. (2011)
- **Dominion Generation**  
Analysis of proposed state tax on output from in-state power generation. (2011)
- **Exelon Corporation and Clean Energy Group**  
Analysis of electric industry issues involved in responding to the U.S. Environmental Protection Agency's air emission regulations. (2010-present)
- **Major electric distribution company and independent power producer**  
Analysis of the net benefits of retiring a set of generating units, and replacing it with a long-term contract to provide power from a gas-fired power plant and biomass power plant. Modeled locational energy prices, capacity prices, and revenue streams in the region. (2010)
- **Major electric utility company**  
Analysis of changing fuel-market conditions affecting the value of gas-fired power generation in the context of litigation. (2010)
- **Commonwealth Edison Company**  
Analysis of the ratemaking issues for a electric distribution utility with respect to energy efficiency program effects in Illinois. (2010-2011)
- **National Grid – Massachusetts electric distribution companies**  
Analysis of the market for and other attributes of the long-term contract for power from the Cape Wind project. (2010)
- **Spectra Energy (with the Interstate Natural Gas Association of America)**  
Analysis of the markets for natural gas, and analysis of the implications of the U.S. Environmental Protection Agency's Advanced Notice of Proposed Rulemaking on PCBs. (2010-2011)
- **Renewable energy company**  
Analysis of transmission access, planning, cost allocation and siting conditions in regions through the U.S. (2010-present)
- **Indian tribe in MidWest**

Analysis of the value of an oil pipeline right-of-way. (2010)

▪ **Dominion Generation**

Analysis of the proposed legislation in Connecticut to establish a windfall profits tax on all generating assets located in the state. (2010)

▪ **Transmission consortium**

Analysis of cost-allocation models for an interstate transmission project involving transmission utilities and merchant transmission companies. (2009-2010)

▪ **Massachusetts renewable energy trust**

Analysis of transmission-related models and considerations for the development of offshore renewable energy. (2009)

▪ **Major electric utility**

Development of business models and approaches for deploying energy efficiency within the context of the American Climate and Energy Security Act framework. (2009)

▪ **Major industrial electricity consumer**

Assistance in analyzing the implications of the American Climate and Energy Security Act for the company, in light of impacts on energy prices and trade considerations. (2009)

▪ **National Grid**

Assistance in developing a revenue decoupling mechanism for retail distribution service, and providing expert witness assistance in electric and natural gas distribution rate cases in Massachusetts, Rhode Island, New York and New Hampshire. (2009-2011)

▪ **Sandia Pueblo**

Assistance in valuing a transmission corridor on tribal reservation land. (2008-present)

▪ **Major electric and gas company**

Analytic and strategic support for company's development of a business plan for energy efficiency and other energy-related investments on the customer side of the meter. (2008)

▪ **AEP Transmission**

Prepared a white paper on the design and cost allocation framework for a high-voltage transmission system designed to support renewable and other resources. (2008)

▪ **Reliant**

Prepared study assessing competition in the wholesale and retail electricity markets in ERCOT. (2008)

▪ **Major environmental organization**

Analytic and strategic support for utility ratemaking policies for advancing energy efficiency in many states. (2008-present)

▪ **New York Independent System Operator**

Supported strategic planning and assessment for the Board of Directors. (2008-2010)

▪ **Commonwealth Edison Company**

Provided testimony on ratemaking policy issues relating to regulatory lag. (2008)

▪ **Energy Association of Pennsylvania (EGA)**

Analysis of proposed legislation to cap retail electricity rates in Pennsylvania after the expiration of rate caps. (2008)

- **National Association of Regulatory Utility Commissioners (NARUC)**  
Preparing study on best practices relating to state regulatory agency policies and utility practices on competitive procurement of resources to serve retail electricity customers. (2007)
- **KeySpan/Boston Gas**  
Analysis of the implications of utility ratemaking for valuation of utility assets for property taxation purposes. (2008)
- **Electric company**  
Analysis of state's retail and wholesale power market structure. (2008)
- **Electric company**  
Preparation of expert report on electric industry structure in the 1990s and 2000s. (2007-2008)
- **Major electric company**  
Analytic support for company's development of strategic plan for company-wide greenhouse gas reduction commitments. (2008)
- **Sierra Pacific Power Company**  
Provided testimony on policy issues relating to the use of historic, future, and hybrid test years in state utility rate cases. (2007-2008)
- **Harvard University**  
Provided strategic assistance relating to regulatory issues affecting the planning and design of Harvard's "green campus" development in Allston Landing. (2007-2008)
- **Public Service Gas & Electric Company of New Jersey (PSEG)**  
Provided assistance in facilitating the development of a policy to address "leakage" of greenhouse gas emissions associated with the adoption of a cap-and-trade program in various Northeast states and the interstate sales of electricity in various Northeast/MidAtlantic power markets. (2007)
- **Electric Power Supply Association**  
Prepared white paper on economic, environmental & regulatory trends in the electric industry (2007).
- **Sempra Energy Company – San Diego Gas & Electric Company and SoCalGas Company**  
Provided testimony on policy issues relating to the provision of financial incentives to electric and gas utilities for the successful provision of energy efficiency programs. (2007)
- **PECO Energy Company**  
Provided advice on various economic and policy issues relating to electric industry restructuring policy. (2007)  
Provided testimony on issues relating to the market for alternative energy credits and the proposal of PECO to voluntarily solicit, procure and bank alternative energy credits. (2007)
- **Commonwealth Edison Company**  
Provided testimony on issues relating to the relationship of auctions for wholesale supply for basic service customers and alternative proposals for utility resource procurement. (2007)
- **ISO New England**  
Assisting Regional Transmission Organization in scenario planning process examining various future technology mixes for New England's electric system. (2006-2007)
- **PJM**  
Preparing report on market monitoring functions performed under various federal regulatory



agencies with responsibility to oversee electricity and energy markets (i.e., the Federal Energy Regulatory Commission and the Commodities Futures Trading Commission). (2006-2007)

▪ **Major Industrial and Power Plant Company**

Assisted company (located outside of New England) in analyzing market and negotiating the price and other terms and conditions for long-term gas supply (2006-2007). Assisted company in valuing a power plant asset. (2007)

▪ **State of North Carolina**

Provided expert witness services on electric utility economics and regulatory issues, on behalf of the North Carolina Attorney General in a nuisance lawsuit to require the Tennessee Valley Authority to put in place air pollution control equipment on coal-fired power plants in TVA's system. (2006-2008)

▪ **Major Regional Transmission Organization**

Performed analysis of market conditions and trends, and benchmarking market rules and reliability performance with other comparable organizations – in support of RTO's strategic planning process. (2006-2007)

▪ **Special LNG Committee, Commonwealth of Massachusetts**

Prepared report on the need for natural gas and liquefied natural gas in the Northeast, the need for LNG facilities, the role of government in the LNG facility siting process, and other issues relating to LNG proposals in the Commonwealth. Provided on *pro-bono* basis to the Commonwealth. (2006)

▪ **Ute Indian Tribe of the Uintah and Ouray Reservation**

Prepared a report on economic and policy issues relating to use of tribal lands for energy rights-of-way, as called for in Section 1813 of the Energy Policy Act of 2005. (2006)

▪ **New York ISO**

Prepared white paper on fuel diversity issues in the New York market. (2008)

Prepared white papers on long-term contracting issues in states with restructured electric industries, and on the economic foundations for single-clearing-price markets versus pay-as-bid markets. (2007)

Performed economic benefit/cost study of the introduction of competition into the wholesale electric market in the region. (2006-2007)

▪ **Commonwealth Edison Company**

Provided testimony on appropriate ratemaking principles for recovery of pension-related costs in proceeding to set rates to go into effect following the transition period. (2006)

▪ **Commonwealth Edison Company**

Provided testimony on economic principles associated with single-price auction design versus pay-as-bid auction design, for the procurement of wholesale power supplies to meet the needs of retail all-requirements customers. (2006)

▪ **Exelon Corporation**

Provided analysis of designs of mandatory carbon control policies. (2005-2007)

▪ **Sonosky, Chambers, Sachse, Endreson & Perry, LLP, on behalf of various Indian Tribes**

Provided analysis in support of comments filed with the Departments of Interior and Energy with respect to the study of energy rights of way on tribal land which was called for in Section 1813 of the Energy Policy Act of 2005. (2005-2006)

Provided analysis in support of various tribal negotiations with energy companies with respect to valuation of energy rights of way on tribal reservation lands. (2007)

- **Electric utility company**  
Performed independent evaluator services in procurement for power resources. (2005-2006)
- **Power Generation Company**  
Provided analysis of product market development in MidWest and Eastern RTOs. (2005)
- **New England Energy Alliance**  
Prepared a white paper on energy infrastructure needs in the New England states. (2005)
- **Committee on Regional Electric Power Cooperation (of the Western Interstate Energy Board)**  
Provides research and advising with respect to market monitoring and assessment for the Western wholesale electric markets. (2005-2007)
- **Southern California Edison Company**  
Provided Independent Evaluator services for a competitive procurement of new long-term generation resources and renewable resources. (2005)
- **LNG / Interstate Gas Pipeline project – Duke Energy/Excelerate project**  
Prepared regional market study for the project proposed for Massachusetts. (2004-2005)
- **Electric Generating Company**  
In a contract dispute, provided expert witness services relating to whether changes in a region's wholesale power market rules nullified a power sales agreement. (2004-2006)
- **Louisville Gas & Electric and Kentucky Utilities**  
For two vertically integrated electric companies, provided expert witness services in a state investigation of which regional transmission approach satisfies state policy objectives. (2004)
- **Independent Generating Company**  
For a power company owned by commercial lenders in a Northeast power market, provided consulting services to monitor state regulatory policies and actions with respect to utility regulation and environmental regulation, and legislation affecting power plants. (2004)
- **Major Electric and Gas Company**  
Performed confidential study of the benefits, costs and current conditions in certain wholesale and retail electric power markets. (2004-2005)
- **Regional Transmission Organization**  
For a confidential project, analyzed market monitoring and mitigation approaches. (2004-2005)
- **Major Commercial Bank**  
For a confidential project, advise with regard to electric industry restructuring and profitability of large energy marketer and trading organization. (2004-2005)
- **Consumer Energy Council of America**  
For a group of electric industry market participants, regulators, and interest groups, prepared white papers on the need for transmission enhancements in U.S. power markets. (2004)
- **Retail electric company**  
Provides confidential analysis of business models and regulation approaches for providing retail electric service in the state. (2004)
- **Independent system operator**  
Provided confidential analysis and research on aligning retail and wholesale market policies. (2004)

- **California State attorney general**  
Provided expert witness services with regard to state resource adequacy & planning practices. (2004)
- **Pacific Gas & Electric Company**  
Provided expert witness services relating to the public benefits of the settlement between PG&E and the California Public Utility Commission, to enable PG&E to emerge from bankruptcy. (2003)
- **Independent power company**  
Provided consulting advice on economics of compliance strategies for air and water permits. (2003)
- **Major public utility company**  
Provided expert advisory services to a buyer of power supplies relating to the pricing and other terms for a long-term purchase power agreement. (2003)
- **Duke Power**  
Provided expert advisory services relating to rate-making and other regulatory practices. (2003)
- **Exelon Generation**  
Provided strategic advice and analytic services relating to market conditions affecting the client's generating assets in New England. (2003)
- **Entergy Services Inc.**  
Provides services as the independent monitor of Entergy's Fall 2002, Spring 2003 and Fall 2003 Requests for Proposals for Supply-Side Resources. (2002-2005)
- **Power generation company in New England**  
Provided expert testimony in contract dispute regarding allocation of uplift costs in an agreement concerning the supply of wholesale power for standard offer service. (2002)
- **Connecticut Light and Power Company**  
Provided expert testimony in contract dispute regarding allocation of congestion costs in an agreement concerning the supply of wholesale power for standard offer service. (2002-2003)
- **Ocean State Power**  
Provided arbitration services in a dispute regarding a gas purchase contract between Ocean State Power and ProGas Ltd. (2002-2003)
- **Regional independent system operator**  
Provided strategic advice on regional transmission organization strategy. (2002)
- **PJM Interconnection**  
Provided advice to the appointed mediator as part of the Alternative Dispute Resolution process, in a dispute involving PJM and a market participant. (2002)
- **Duke Energy Corporation**  
Provided analysis on strategic issues in gas and electric regulatory policy for Duke Energy's corporate office, including with regard to code of conduct issues, wholesale competition, regional transmission organization policy. (2001-2002)
- **Pacific Gas and Electric Corporation**  
Provided expert witness testimony in proceedings of the Federal Energy Regulatory Commission on public benefits of the proposed restructuring of PG&E assets as part of its emergence from bankruptcy. (2001-2002)

- **Massachusetts Renewables Trust**  
Provided assistance in support of the Trust's renewables and power quality program. (2001-2002)
- **Major electric holding company**  
Prepared an analysis of the regulatory policies for reviewing merger applications in states where potential merger candidates are located. (2001)
- **Western Massachusetts Electric Company**  
Provided expert testimony in contract disputes regarding allocation of congestion costs in agreements concerning the supply of wholesale power for standard offer service. (2001-2002)
- **The Energy Foundation**  
Researched and wrote a white paper on California's process for permitting new power plants. (2001)
- **Cross-Sound Cable Company**  
Provided expert testimony regarding public benefits of proposal to construct merchant transmission facility across Long Island Sound. (2001-2002)
- **Major independent power company**  
Provides expert witness support in litigation surrounding power plant development project, involving viability of project's environmental and siting permitting. (2001-2004)
- **MASSPOWER Inc.**  
Mediator in a contract dispute involving pricing of power purchases. (2001)
- **NRG Energy and Dynegy**  
Provided expert witness support in regulatory proceeding to review these companies' acquisition of power plants being divested by Sierra Pacific and Nevada Power. (2001)
- **Occidental Chemical Corporation**  
Provided expert witness support and economic analysis of a major electric utility's transmission policies and practices, and review of the proposed RTO. (2000)
- **PP&L Global**  
Provided economic and environmental analysis and expert witness support for proposal to build the Kings Park Energy power plant in Long Island, New York. (2000)
- **Calpine Corporation**  
Provided economic and environmental analysis and expert witness support for proposal to build the Wawayanda power project in Rockland County, New York. (2000)  
  
Provided environmental analysis and expert witness support for proposal to build the Towantic power plant in Oxford, Connecticut. (2001)
- **American National Power, Calpine, El Paso, NRG Energy, Sithe, Southern Energy**  
Provided support for the development of a proposal for a Regional Transmission Organization for New England. (2000-2001)
- **Duke Energy/Maritimes and Northeast Pipeline**  
Provided expert reports on the market and environmental impacts of new natural gas infrastructure and supply in New England and the public benefits of the Maritimes and Northeast Phase III and Hubline project. (2000-2003)
- **Arkansas Electric Distribution Cooperatives and Arkansas Electric Cooperative Corporation**

Provided expert witness support and analysis on economic and public policy issues associated with various aspects of wholesale and retail competition in Arkansas. (2000-2001)

- **TransÉnergie U.S.**  
Provided expert testimony regarding public benefits of proposal to construct merchant transmission facility. (2000-2001)
- **Conectiv**  
Provided strategic wholesale market analysis and support for procurement of supplies for distribution utility company's provision of Basic Generation Services to retail customers. (2000)
- **SCS Energy Corp. – Astoria Energy**  
Provided economic and environmental analysis and expert witness support for proposal to build new power plant in New York City. (2000-2001)
- **HEFA Power Options**  
Provided strategic advice regarding wholesale power market for retail buyers' group. (2000-2003)
- **Major real estate development company**  
Provided strategic support for configuration of electric and gas infrastructure for large regional mixed-use development project. (2000-2001)
- **Investment company**  
Provided strategic advice to investment company with regard to potential investment in major electric generating equipment manufacturing company. (2000)
- **Major independent power company**  
Provided economic and environmental support for company's application to construct a merchant power plant in Florida. (2000)
- **Major railroad company**  
Provided expert witness support on economic and regulatory policy issues for railroad in state regulatory proceeding on a proposed utility merger. (2000)
- **Coalition of Wireless Telecommunications Carriers**  
Prepared an expert report on economic benefits of wireless telecommunications. (2000)
- **Major brownfield property developer**  
Provided valuation of property to be developed as site for new electric generating facility. (2000)
- **Fitchburg Gas and Electric Company**  
Provided litigation support for a gas and electric company on rate design policy. (2000)
- **Consortium of electric companies**  
Provided economic analysis, contract review, and litigation support for a consortium of electric companies with power purchase agreements with PURPA projects. (1999)
- **FirstEnergy Corp.**  
Provided expert witness support regarding generation asset valuation and the impacts of a new electric industry restructuring law on the company. (1999-2000)
- **Ozone Attainment Coalition**  
Provided strategic analysis and advice on electric system reliability issues relating to electric companies' implementation of 2003 NOx requirements issued by the U.S. EPA. (1999)

- **Municipal electric department**  
Provided expert witness services and analysis of the economics and need for a new natural gas pipeline proposed to serve an existing electric power plant in Massachusetts. (1998-2001)
- **Seneca Nation**  
Provided expert analysis and strategic advice regarding the value of transmission rights of way, in a dispute with an electric utility company. (1998-2000)
- **Major cable company**  
Provided strategic advice in a series of regulatory and court cases involving inter-affiliate transactions of electric utility company entering into competitive telecommunications and cable markets. (1998)
- **Major electric utility company**  
Provided expert witness support regarding structural changes in the electric industry, in litigation pertaining to the company's restructuring plans. (1998-1999).
- **Sithe Energies, Inc.**  
Provided strategic advice and regulatory support on a variety of issues (market analysis, transmission and ISO issues, federal and state market rules, legislation, siting, environmental strategy) relating to the company's participation in the New England, New York, and PJM markets. (1997-2003)  
  
Provided transition assistance to the company in its acquisition and integration of approximately 2,000 MW of existing fossil fuel generation from Boston Edison Company. (1997-1998)  
  
Provided transition assistance to the company in its acquisition and integration of approximately 4,100 MW of existing fossil and hydroelectric generation capacity from GPU Genco. (1998-1999)  
  
Provided support for the company's participation in electricity product markets structured by NEPOOL and operated by the Independent System Operator-New England, the New York power pool and the New York ISO, and PJM. (1997-2002)  
  
Provided strategic project development advice and expert witness support for the company's applications to construct three natural gas merchant power plants (totaling 2865 megawatts) in Everett, Weymouth, and Medway, Massachusetts. (1998-2001)  
  
Provided strategic guidance and regulatory support regarding design of air quality improvement plan for existing fossil units at Mystic Station. (1998-2001)  
  
Provided strategic guidance regarding company's natural gas-fired merchant power plant development projects in Ontario, Canada. (2000-2001)
- **Natural Resources Canada**  
Prepared a white paper on the implications for electric system reliability in Canada that are associated with restructuring the electric industry in the United States. (1999)
- **Cummins Engine Company, Inc.**  
Provided strategic analysis on implications of national energy and environmental policies for the Company's long-term business opportunities. (1999)
- **Electric utility company**  
Provided advice and regulatory support with regard to the economics and prudence of an existing long-term power purchase agreement. (1998)
- **National Association of Regulatory Utility Commissioners (NARUC)**

Assisted the Executive Director and NARUC leadership in updating its strategic plan and in preparing a business plan for its implementation. (1998)

- **State energy office**

Assisted the office in analyzing options for supporting renewable resource development in the state and in designing a market-based strategy to implement a new legislative mandate for a “renewables portfolio standard.” (1997-1998)

- **U.S. Generating Company (now PG&E Generating Company)**

Provided analysis of the economic, reliability, and environmental benefits to the host state and region of a new merchant power generation facility: the 360-megawatt Millennium project in Massachusetts. Provided expert witness testimony on the results of this analysis to the Massachusetts Energy Facility Siting Board. (1996-1997)

Provided analysis of the economic, reliability, and environmental benefits of a new merchant power generation facility: the 792-megawatt Lake Road Generating Project in Connecticut. Provided expert witness testimony on the need for this project to the Connecticut Siting Board. (1997-1998)

- **Pennsylvania Power & Light Company**

Provided strategic guidance, economic and policy analysis, and regulatory support for electric utility company as it developed and proposed its plan for restructuring its company for retail competition. Issues and tasks included electricity market price estimation, rate design, revenue analysis, consumer protection, corporate structure, and regulatory strategy. Provided expert witness testimony on rate design policy issues. (1996-1998)

- **Major diversified electric equipment company**

Provided strategic advice and analysis on market opportunities and risk in various regions of the U.S. electric industry, under numerous restructuring scenarios. (1996-1997)

- **Major nationwide electricity consumer**

Conducted analysis of buying options and strategies for acquisition of electricity services in states with customer choice in retail generation markets. Analysis included review and comparison of eight states’ implementation of customer choice, from the perspective of how retail rate and function are unbundled, how the commercial and reliability functions are structured in the regional generation market, and how the customer should approach the market to competitively procure power across various states. (1997)

- **National Council on Competition in the Electric Industry**

Prepared a Briefing Paper on Regional Issues in Electric Industry Restructuring, for the NCCEI—a joint project of the National Association of Regulatory Utility Commissioners, the National Conference of State Legislatures, the U.S. Department of Energy, and the U.S. Environmental Protection Agency. Analyzed regional issues, including electric system reliability, transmission access and siting, environmental protection, market power, interstate reciprocity in retail access policies, and regulation of multi-state electric utility companies. (1997)

- **Major western coal company**

Analysis of western states’ electric industry restructuring policies and market prices for power in various states within the Western Systems Coordinating Council area. (1996-1997)

- **Major gas pipeline company**

Provided analysis of market structures and prices for generation and delivery services in electric service territories where the gas pipeline would locate facilities that use electricity. (1997)

- **Major electric supply company**  
Provided analysis of regional electricity market conditions to support this company's analysis of the value of various utility assets that were being divested as part of an electric utility company's corporate restructuring. (1997)
- **Massachusetts Division of Energy Resources**  
Analyzed Boston Gas Company's proposal for unbundling its retail service, its proposal for performance-based rates, and its plan for departing the merchant function. Provided analytic, policy and negotiation support on gas industry restructuring issues in a variety of cases. (1996-1998)
- **Massachusetts Division of Energy Resources**  
Assisted the state's energy office in developing policies for establishing a statewide fund to support renewable resource development as part of the state's electric industry restructuring plan. Provided analytic support to the energy office as it participated in a working group of stakeholders attempting to reach consensus on the institutional design of such a renewables fund. Drafted legislative language to create the fund and the non-bypassable charge on distribution service in the state. (1997)
- **Massachusetts Water Resources Authority Advisory Board**  
Analyzed opportunities for the MWRA, a public authority with major energy-using and -producing assets, to position itself beneficially as a participant in a restructured retail electricity market in New England. (1996-1997).
- **Coalition of marketers and independent power producers**  
Analyzed state public utility commission proposed rules for restructuring the electric industry, from the point of view of whether the proposed structure would assure a workably competitive market. Examined the transmission owners' proposal for an independent system operator. (1996-1997)
- **Major independent power producer**  
Analyzed market opportunities and risks for merchant plant development in a U.S. region. (1996)
- **Major independent power producer**  
Analyzed the expected market price of power in two regions of the U.S. electricity markets. Presented results to company board of directors. (1996)
- **Group of municipal electric companies in New York State**  
Provided expert witness testimony on cost allocation issues in court litigation on wholesale power contracts. (1996)

## TESTIMONY

Many confidential expert reports, testimonies, declarations, affidavits, and depositions in confidential arbitrations and mediations.

- **NorthStar Decommissioning Holdings, LLC, NorthStar Nuclear Decommissioning Company, LLC, NorthStar Group Services, Inc., LVI Parent Corp., NorthStar Group Holding, LLC, Entergy Nuclear Vermont Investment Company, and Entergy Nuclear Operations, Inc.**  
Before the *Vermont Public Service Board*, in the matter of the Joint Petition to transfer ownership of Entergy Nuclear Vermont Yankee, LLC, Docket No. [ ], December 16, 2016.
- **Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC, Entergy Nuclear FitzPatrick, LLC, and Entergy Nuclear Operations, Inc.**



Before the *New York Public Service Commission*, in the matter of the Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Case 15-E-0302, Affidavit of Susan Tierney Regarding the Staff White Paper on a Clean Energy Standard, April 21, 2016.

- **Environmental and Public Health Respondent-Intervenors (Natural Resources Defense Council, Environmental Defense Fund, Sierra Club, Center for Biological Diversity, American Lung Association, Clean Air Council, Clean Wisconsin, Conservation Law Foundation, and Ohio Environmental Council, West Virginia Highlands Conservancy, Ohio Valley Environmental Coalition, Coal River Mountain Watch, Kanawha Forest Coalition, Mon Valley Clean Air Coalition and Keepers of the Mountains Foundation)**  
Before the U.S Court of Appeals for the District of Columbia Circuit, Nos. 15-1365 and Consolidated Cases, in Re: West Virginia, et al., on Petitions for the U.S. Environmental Protection Agency, prepared declaration, December 8, 2015.
- **New England Power Generators Association (NEPGA)**  
Before the Massachusetts Joint Committee on Telecommunications, Utilities and Energy, Hearing on Clean Energy Procurement, Transmission and Financing, Statement on SB 1965 (An Act relative to energy sector compliance with the Global Warming Solutions Act), September 29, 2015
- **Natural Resources Defense Council, Environmental Defense Fund, Sierra Club, Center for Biological Diversity, Clean Air Council, Clean Wisconsin, and Conservation Law Foundation** Before the U.S Court of Appeals for the District of Columbia Circuit, Nos. 15-1277 & 15-1284 in Re: West Virginia, et. al., and in Re: Peabody Energy Corp., on Petitions for Extraordinary Writ, prepared declaration, August 31, 2015.
- **Pepco Holdings, Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**  
Before the Federal Energy Regulatory Commission, in Delaware Division of Public Advocate, *et. al.*, v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013; prepared answering testimony, June 2, 2015; and prepared cross-answering testimony, August 21, 2015.
- **Hawaii Gas Company**  
Before the Public Utilities Commission of Hawaii, in the Matter of the Application of Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., Maui Electric Company, Limited, and NextEra Energy, Inc., for Approval of the Proposed Change of Control and Related Matters, Docket No. 2015-0022, answering and direct testimony filed July 20, 2015, rebuttal testimony, October 5, 2015. Cross-examination under oath, February 9, 2016.
- **Delaware Department of Natural Resources and Environmental Control**  
Before the Superior Court of the State of Delaware in and for Sussex County, C.A. No. S13C-12-025 RFS, in Re: David T. Stevenson, et al., v. Delaware Department of Natural Resources and Environmental Control and David S. Small, prepared affidavit, September 8, 2016; prepared affidavit, June 7, 2016; prepared affidavit, July 15, 2015.
- **On her own behalf**  
Before the House Committee on Science, Space and Technology, Subcommittee on the Environment and Subcommittee on Energy, Hearing on the U.S. Energy Information Administration Report: Analysis of the EPA's Clean Power Plan, June 24, 2015.

- **Baltimore Gas and Electric, Pepco Holdings Inc. and PHI's affiliates Pepco, Delmarva Power, and Atlantic City Electric**  
Before the Federal Energy Regulatory Commission, in the Matter of Delaware Division of the Public Advocate, et. al., v. Baltimore Gas and Electric Company, et. al, Docket Nos. EL13-48-001 and EL15-27-000 (Consolidated), June 2, 2015.
- **On her own behalf**  
Before the House Committee on Commerce and Energy, Subcommittee on Energy and Power, Hearing to Examine EPA's Proposed 111(d) Rule for Existing Power Plants and the Proposed Ratepayer Protection Act, April 14, 2015.
- **Exelon Generating Company LLC**  
Before the Massachusetts Energy Facilities Siting Board for Approval to Construct a 200 MW Simple Cycle Combustion Turbine Generating Facility in the Town of Medway, Massachusetts, Exelon West Medway, LLC/Exelon West Medway II, LLC, EFSB Docket No. 15-1/D.P.U. 15-25, March, 2015; cross-examination under oath, December 8, 9, and 14, 2015.
- **On her own behalf**  
Before the House Committee on Investigations and Government Oversight, Subcommittee on Interior, Hearing to Examine the Impacts of EPA Air and Water Regulations on the States and the American People, February 26, 2015.
- **Exelon Corporation and Pepco Holdings, Inc.**  
Before the *District of Columbia Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 18, 2014); rebuttal testimony (December 17, 2014); testimony under cross-examination (April 8, 2015); direct testimony in support of Settlement Agreement, October 20, 2015; testimony under cross-examination, December 4, 2015.
- **On her own behalf**  
Before the Federal Energy Regulatory Commission, Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets, and Energy Infrastructure, Docket No. AD15-4-000, February 19, 2015.
- **Exelon Corporation and Pepco Holdings, Inc.**  
Before the *Maryland Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (August 19, 2014); rebuttal testimony (January 7, 2015); testimony under cross-examination (January 26-27, 2015); post-settlement testimony (March 27, 2015); supplemental post-settlement testimony (April 14, 2015); testimony under cross-examination (April 15, 2015).
- **Algonquin Gas Transmission and Maritimes & Northeast Pipeline (Spectra Energy)**  
Before the Maine Public Utilities Commission, Investigation of Parameters for Exercising Authority Pursuant to the Maine Energy Cost Reduction Act, 35-A M.R.S.A. § 1901, Docket No. 2014-00071, testimony under cross-examination, July 11, 2014, and August 8, 2014.
- **Exelon Corporation and Pepco Holdings, Inc.**  
Before the *Delaware Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 27, 2014), rebuttal testimony (January 12, 2015).
- **Exelon Corporation and Pepco Holdings, Inc.**  
Before the *New Jersey Board of Public Utilities*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 27, 2014), rebuttal testimony (December 10,

2014)

- **Exelon Corporation and Pepco Holdings, Inc.**

Before the *District of Columbia Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., prefiled direct testimony (June 18, 2014), rebuttal testimony (December 17, 2014).

- **On her own behalf**

Before the Oregon State Legislature's House Interim Committee on Revenue, Senate Interim Committee on Finance and Revenue, on "Consideration of the Feasibility and Implications of a Clean Air Tax or Fee in Oregon: Implementing Greenhouse Gas Emission Reduction Policies – Experience from Other States," January 15-16, 2014.

- **On her own behalf**

Before the U.S. House of Representatives Energy and Commerce Subcommittee on Energy and Power, "Hearing on EPA's Proposed GHG Standards for New Power Plants and H.R. 2100, Whitfield-Manchin Legislation," November 14, 2013.

- **Joshua Epel, James Tarpey, and Pamela Patton, et al.**

Before the U.S. District Court of the State of Colorado, on behalf of Joshua Epel, James Tarpey, and Pamela Patton (commissioners of the Colorado Public Utilities Commission), and Environment Colorado, Conservation Colorado Education Fund, Sierra Club, The Wilderness Society, Solar Energy Industries Association, and Interwest Energy Alliance, in re: *American Tradition Institute and Rod Lueck, v. Epel et al.*, Civil Action Number 11-cv-00859-WJM-BMB, expert report, November 7, 2013.

- **On her own behalf**

Before the Federal Energy Regulatory Commission, in the Matters of Centralized Capacity Markets in Regional Transmission Organizations and Independent System Operators," Docket No. AD13-7-000, re: considerations for the future, September 9, 2013.

- **On behalf of Entergy Nuclear Vermont Yankee**

Before the U.S District Court, District of Vermont, in Central Vermont Public Service Corporation and Green Mountain Power Corporation v. Entergy Nuclear Vermont Yankee, Docket No. 2:12-cv-10-wks, expert report, May 8, 2013.

- **Environmental Defense Fund and North Carolina Sustainable Energy Association**

Before the Public Utilities Commission of North Carolina, Docket E-7, SUB 1032, August 7, 2013.

- **Advanced Energy Economy Ohio**

Before the Ohio Senate Public Utilities Committee in support of the Ohio Energy Efficiency Resource Standard, April 9, 2013.

- **Pepco Holdings, Inc., and its operating affiliates, Potomac Electric Power Company, Delmarva Power & Light Company, and Atlantic City Electric Company**

Before the Federal Energy Regulatory Commission, in Delaware Division of Public Advocate, *et. al.*, v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013.

- **Major engineering, construction and project-management company**

Prepared an expert report on electric market conditions in a dispute surrounding cancellation of a major power plant, 2012.

- **Baltimore Gas and Electric Company**

Before the Federal Energy Regulatory Commission, in Delaware Division of Public Advocate, *et. al.*, v. Baltimore Gas and Electric Company and Pepco Holdings Inc., Docket No. EL13-48-000, April 3, 2013.

- **NSTAR Electric Company and Cape Wind LLC**  
Before the Massachusetts Department of Public Utilities, in the Petition of NSTAR Electric Company for Approval of a Proposed Long-Term Contract for Renewable Energy with Cape Wind Associates, LLC Pursuant to St. 2008, c. 169, §83, Prefiled Direct Testimony, March 30, 2012; testimony under cross-examination, August 2, 2012.
- **Pacific Gas and Electric Company**  
Before the California Public Utilities Commission, in the Rulemaking on the Commission's Own Motion to Adopt New Safety and Reliability Regulations for Natural Gas Transmission and Distribution Pipelines and Related Ratemaking Mechanisms, Rulemaking 11-02-019, Rebuttal Testimony filed on February 28, 2012; testimony under cross-examination, March 20, 2012.
- **COMPETE Coalition**  
Before the New Jersey Board of Public Utilities, In the Matter, In the Matter of the Board's Investigation of Capacity Procurement and Transmission Planning, Docket No. EO11050309, October 14, 2011.
- **On her own behalf**  
Before the U.S. House Energy and Commerce Committee, Subcommittee on Energy and Power, EPA Regulations and Electric System Reliability, September 14, 2011.
- **On her own behalf**  
Before the U.S. Senate Environment and Public Works Committee, Subcommittee on Clean Air and Nuclear Safety, June 30, 2011, Oversight Hearing: Review of EPA Regulations Replacing the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR).
- **Exelon Corporation and Constellation Energy Group**  
Before the *Maryland Public Service Commission*, In the Matter of the Merger of Exelon Corporation and Constellation Energy Group, Case No. 9271, prefiled direct testimony (May 25, 2011); rebuttal testimony (October 12, 2011), supplemental testimony (December 15, 2011), testimony under cross-examination (November 10, 2011, January 25, 2012).
- **New England Power Generators Association**  
Before the *Massachusetts Public Utilities Commission*, In the Matter of the Joint Petition for Approval of Merger [of Northeast Utilities and NSTAR] Pursuant to G.L. c. 164 , § 96, Docket D.P.U. 10-170, prefiled direct testimony (May 20, 2011); testimony under cross-examination (July 15 and 18, 2011).
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Proposed General Increase in Electric Rates of Commonwealth Edison Company, Docket No. 10-0467, ComEd Exhibit 13.0, prefiled direct testimony (filed June 30, 2010); rebuttal testimony (filed November 22, 2010); surrebuttal testimony (filed January 2, 2011), testimony under cross-examination (January 18, 2011).
- **National Grid: Massachusetts Electric Company and Nantucket Electric Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Petition of Massachusetts Electric Company and Nantucket Electric Company each d/b/a National Grid for approval by the Department of Public Utilities of two long-term contracts to purchase wind power and renewable energy certificates, pursuant to G.L. c. 169, § 83 and 220 C.M.R. § 17.00 et seq. – Docket D.P.U. 10-54

(the Cape Wind contract proceeding), prefiled direct testimony (filed June 4, 2010), rebuttal testimony (filed September 1, 2010), testimony under cross examination (September 8, 13, 14, 23, 24, 2010).

- **National Grid: Boston Gas Company, Essex Gas Company, Colonial Gas Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. D.P.U. 10-55, prefiled direct testimony (filed April 16, 2010); testified under cross-examination, June 28-29, 2010.
- **National Grid: EnergyNorth Natural Gas, Inc., d/b/a National Grid NH**  
Before the *New Hampshire Public Utilities Commission*, Investigation as to the Propriety of Proposed Natural Gas Tariff Changes, Docket DG 10-017, prefiled direct testimony (filed February 26, 2010).
- **National Grid: Niagara Mohawk Power Corporation**  
Before the *New York Public Service Commission*, Investigation as to the Propriety of Proposed Electric Tariff Changes, Docket No. 10-E-0050, prefiled direct testimony (filed January 29, 2009), rebuttal testimony (filed August 2010).
- **National Grid: Narragansett Electric Company**  
Before the *Rhode Island Public Utilities Commission*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. R.I.P.U.C. 4065, prefiled direct testimony (filed June 1, 2009); testimony under cross-examination, November 4, 2009).
- **National Grid: Massachusetts Electric Company and Nantucket Electric Company**  
Before the *Massachusetts Department of Public Utilities*, Investigation as to the Propriety of Proposed Tariff Changes, Docket No. D.P.U. 09-39, prefiled direct testimony (filed May 15, 2009); testimony under cross-examination, August 7 and 25, 2009, and September 8, 2009).
- **Amerada Hess Corp., et al.**  
Before the District Court of the United States for the Southern District of New York, on behalf of Amerada Hess Corp., et al., in *City of New York v. Amerada Hess Corp. et al.*, Case No. 1:00-1898, testimony in deposition, May 12, 2009.
- **State of North Carolina**  
Before the District Court of the United States for the Western District of North Carolina, on behalf of North Carolina in *State of North Carolina, ex rel. Roy Cooper, Attorney General, v. Tennessee Valley Authority*, Case No. 1:06CV20, testimony in deposition, May 17, 2007; testimony at July 22, 2008.
- **KeySpan Energy Delivery (National Grid)**  
Before the Massachusetts Appellate Tax Board, *Boston Gas Company, d/b/a KeySpan Energy Delivery New England v. City of Boston*, Docket No. F275055-F275056 (FY 2004), F279207-F279208 (FY 2005), F284088-F286194 (FY 2006), testimony and cross-examination, May 20-21, 28, June 4, 2008.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Proposed General Increase in Electric Rates of Commonwealth Edison Company, Docket No. 07-0566, ComEd Exhibit 18.0, prefiled rebuttal testimony (filed April 12, 2008).
- **Sierra Pacific Power Company**  
Before the Public Utilities Commission of Nevada, In the Matter of the Application of Sierra Pacific Power, filed pursuant to NRS 704.110(3), for authority to increase its general rates charged to all classes of electric customers to reflect an increase in annual revenue requirement, Docket No. 07-12 (filed December 3, 2007), Prefiled Direct Testimony; cross examination, April 17-18, 2008.

- **Amerada Hess Corp., et al.**  
Before the District Court of the United States for the Southern District of New York, on behalf of Amerada Hess Corp., et al., in *County of Suffolk and Suffolk County Water Authority v. Amerada Hess Corp. et al.*, Case No. 1:00-1898, testimony filed October 1, 2007.
- **Sempra Energy Company – San Diego Gas & Electric Company and SoCalGas Company**  
Before the *California Public Utility Commission*, Order Instituting Rulemaking to Examine the Commission’s post-2005 Energy Efficiency Policies, Programs, Evaluation, Measurement and Verification and Related Issues, Rulemaking Docket 06-04-010 (Filed April 13, 2006), testimony filed May 3, 2007, cross examination, May 29, 2007.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Investigation of Rider CPP of Commonwealth Edison Company, and Rider MV of Central Illinois Light Company d/b/a AmerenCILCO, of Central Illinois Public Service Company d/b/a/ AmerenCIPS, and of Illinois Power Company d/b/a Ameren IP, pursuant to Commission Orders regarding the Illinois Auction, Docket No. 06-0800, testimony filed April 6, 2007; cross-examination, April 24, 2007.
- **PECO Energy Company**  
Before the *Pennsylvania Public Utility Commission*, Petition of PECO for Approval of (1) a Process to Procure Alternative Energy Credits During the AEPS Banking Period, and (2) A Section 1307 Surcharge and Tariff to Recover AEPS Costs, Prefiled Direct Testimony, March 19, 2007.
- **Masspower**  
Before the Superior Court Department of Suffolk County, Massachusetts, *Massachusetts Municipal Wholesale Electric Company v. Masspower, et al.*, Civil No. 05-02710 (BLS1), on the changes in conditions in the electric industry in New England as they relate to Masspower’s performance under its power supply agreement with MMWEC; Expert Report, September 11, 2006; oral testimony under cross examination at trial, October 16-17, 2006.
- **Commonwealth Edison Company**  
Before the *Illinois Commerce Commission*, Proposed general increase in electric rates, general restructuring of rates, price unbundling of bundled service rates, and revision of other terms and conditions of service, Docket No. 05-0597, Rebuttal Testimony, January 30, 2006; Surrebuttal Testimony, March 14, 2006; oral testimony under cross-examination, March 23, 2006. Testimony on rehearing, September 20, 2006.
- **Commonwealth Edison Company**  
Before the *Illinois House of Representatives, Electric Utility Oversight Committee*, on the Pay-as-Bid versus Uniform Price Auction Approach To Procurement of Wholesale Power for ComEd’s Full-Requirements Customers, January 18, 2006, Springfield, Illinois.
- **Louisville Gas & Electric Company and Kentucky Utilities Company**  
Before the *Kentucky Public Service Commission*, Application of LG&E and KU to transfer functional control of their transmission assets, Case No. 2005-xxxx, Direct Testimony, November 19, 2005.
- **Western Massachusetts Electric Company**  
Before the Superior Court Department of Norfolk County, Massachusetts, *Alternative Power Source, Inc., v. Western Massachusetts Electric Company*, Civil Action No. 00-1967, on the allocation of costs related to transmission congestion in wholesale power contract for standard offer service. Expert Report, September 19, 2001; deposition, October 15, 2001; testimony at trial, July 15, 2005.

- **Entergy Louisiana, Inc. and Entergy Gulf States Inc.**  
Before the *Louisiana Public Service Commission*, Application of Entergy Louisiana, Inc. for Approval of the Purchase of Electric Generating Facilities and Entergy Gulf States, Inc. for Authority to Participate in Contract for the Purchase of Capacity and Electric Power, Docket No. U27836, January 21, 2005.
- **Louisville Gas & Electric Company and Kentucky Utilities Company**  
Before the *Kentucky Public Service Commission*, Investigation Into The Membership of Louisville Gas and Electric Company and Kentucky Utilities Company In The Midwest Independent Transmission System Operator, Inc., Case No. 2003-00266, September 29, 2004; Supplemental Rebuttal Testimony, January 10, 2005; testimony at hearing, June 2005.
- **Entergy Services Inc.**  
Before the *Federal Energy Regulatory Commission*, Entergy Services Inc., et al., in support of the application for approval of market-based power purchase agreements under Section 205 of the Federal Power Act. Affidavit, February 28, 2003; Affidavit, March 31, 2003; Testimony, September 2003; Testimony at deposition, November 20, 2003; Rebuttal Testimony, May 11, 2004; Deposition, May 27, 2004, and June 10-11, 2004; Testimony under cross-examination, July 19-23, 26-27, 2004.
- **Pacific Gas & Electric Company**  
Before the *California Public Utilities Commission*, In Re: Order Instituting Investigation into the ratemaking implications for Pacific Gas and Electric Company (PG&E) pursuant to the Commission's Alternative Plan of Reorganization under Chapter 11 of the Bankruptcy Code for PG&E, in the United States Bankruptcy Court, Northern District of California, San Francisco Division, In re Pacific Gas and Electric Company, Investigation 02-04-026, Pre-Filed Testimony, July 23, 2003, Testimony under cross-examination, September 12, 2003.
- **Entergy Louisiana, Inc.**  
Before the *Louisiana Public Service Commission*, *Entergy Service*, In Re: Application of Entergy Louisiana, Inc., for Authorization to Enter into Certain Contracts for the Purchase of Capacity and Energy, Docket No. U-27136, Rebuttal Testimony, April 25, 2003.
- **Pacific Gas and Electric Company/PG&E Corporation**  
Before the *Federal United States Bankruptcy Court, Northern District of California, San Francisco Division*, In Re: Pacific Gas and Electric Company, Debtor, Federal I.D. No. 94-0742640, on the public policy concerns raised by the proposed reorganization plan of PG&E Corporation. Expert report, November 8, 2002; rebuttal report, November 26, 2002.
- **PP&L Global**  
Before the *New York Public Service Commission, Article X Siting Board*, on the economic and environmental benefits of the Kings Park Energy power plant. Prefiled direct testimony (with James Potter, Stephen T. Marron, David J. Kettler, and Thomas Conoscenti), January 2002; rebuttal testimony (with James Potter, Stephen T. Marron, William C. Miller, Jr., N. Dennis Eryou, and Robert W. Brown), October 23, 2002.
- **Connecticut Light & Power Company**  
Before the *Federal United States District Court, District of Connecticut, Connecticut Light & Power Company v. NRG Power Marketing Inc.*, on their standard offer service wholesale sales agreement. Expert report, August 30, 2002; deposition, September 27, 2002.
- **Pacific Gas and Electric Company/PG&E Corporation**  
Before the *Federal Energy Regulatory Commission, in the Matter of Pacific Gas and Electric Company, PG&E*

Corporation, on behalf of its Subsidiaries Electric Generation LLC, ETrans LLC, and GTrans LLC, on the public benefits of the application seeking approval under Section 203 of the Federal Power Act and Section 12 of the Natural Gas Act for various actions relating to restructuring of the company to emerge from bankruptcy, November 30, 2001.

- **Cross-Sound Cable Company LLC**

Before the *Connecticut Siting Council*, on the public benefits of the proposed Cross Sound Cable Project's Application for a Certificate of Environmental Compatibility and Public Need, Docket No. 208. Prepared direct testimony, July 23, 2001; oral testimony under cross-examination, October 24-26, 29-30, 2001.

- **Sithe New England (Sithe Edgar LLC, Sithe New Boston LLC, Sithe Framingham LLC, Sithe West Medway LLC, Sithe Mystic LLC)**

Before the *Federal Energy Regulatory Commission, in the Matter of NSTAR Electric & Gas Corp., v. Sithe Edgar LLC, Sithe New Boston LLC, Sithe Framingham LLC, Sithe West Medway LLC, Sithe Mystic LLC, and PG&E Energy Trading*, Docket No. EL01-79-000. Affidavit comparing historical cost recovery by Boston Edison for its fossil generation units (pre-divestiture) under rate regulation, versus Sithe's revenue recovery for these same units (post-divestiture) under market prices, June 5, 2001.

- **NRG Energy Inc. and Dynegy Holdings Inc.**

Before the *Public Utilities Commission of Nevada*, In Re: petition of the Attorney General's Bureau of Consumer Protection to issue an Order staying further proceedings regarding divestiture of Nevada's electric generation assets and to open a docket to consider whether to issue a moratorium on divestiture in Nevada. Supplemental prepared direct testimony on behalf of Valmy Power LLC, April 6, 2001; testimony under cross-examination.

Before the *Public Utilities Commission of Nevada*, In Re: petition of the Attorney General's Bureau of Consumer Protection to issue an Order staying further proceedings regarding divestiture of Nevada's electric generation assets and to open a docket to consider whether to issue a moratorium on divestiture in Nevada, prepared direct testimony on behalf of Reid Gardner Power LLC and Clark Power LLC, April 3, 2001; testimony under cross-examination.

- **Sithe New England, LLC**

Before the *Federal Energy Regulatory Commission, In the Matter of Maine Public Utilities Commission and The United Illuminating Company v. ISO New England, Inc.*, affidavit on the role of price "spikes" in compensating generators for the services that they provide in the region, September 7, 2000.

- **Arkansas Electric Distribution Cooperatives**

Before the *Arkansas Public Service Commission, In the Matter of a Generic Proceeding to Establish Uniform Policies and Guidelines for a Standard Service Package*. Prepared joint reply testimony (with Janet Gail Besser), July 21, 2000; prepared joint surreply testimony (with Janet Gail Besser), August 3, 2000.

- **TransEnergie U.S.**

Before the *Connecticut Siting Council*, on the public benefits of the proposed Cross Sound Cable Project. Expert report, July, 2000; prepared direct testimony, September 20, 2000; oral testimony, September 27, 2000; supplemental written testimony, December 7, 2000; oral testimony under cross-examination, December 14, 2000; oral testimony January 9-11, 2001.

- **SCS Energy Corp.**

Before the *New York State Public Service Commission*, on the economic and environmental impact of a new combined cycle power plant in Queens, NY, June 19, 2000.



- **Reading Municipal Light Department**  
Before the *Massachusetts Energy Facilities Siting Board*, Docket No. EFSB 97-4, on the economics and need for a new natural gas pipeline, June 19, 2000; testimony under cross-examination September 19, 2000, September 21-22, 2000, October 5, 2000, and October 17, 2000.
- **Fitchburg Gas and Electric Light Company**  
Before the *Massachusetts Department of Telecommunications and Energy*, Docket D.T.E. 99-66, on gas and electric company rate design policy, testimony under cross-examination, January 14, 2000.
- **FirstEnergy Corp.**  
Before the *Public Utilities Commission of Ohio*, In the Matter of the Application of FirstEnergy Corp. on behalf of Ohio Edison Company, the Toledo Edison Company, and The Cleveland Electric Illuminating Company: for Approval of an Electric Transition Plan and for Authorization to Recover Transition Revenues (Case No. 99-1212-EL-ETP); for Approval of New Tariffs (Case No. 99-1213-EL-ATA); for Certain Accounting Authority (Case No. 99-1214-EL-AAM), on recovery of transition costs and calculation of the market value of generation assets. Joint testimony (with Dr. Scott T. Jones), December 22, 1999; supplemental testimony (with Dr. Scott T. Jones), April 4, 2000; deposition, April 7, 2000.
- **Sithe New England, LLC**  
Before the *Massachusetts Energy Facilities Siting Board*, Docket EFSB 98-10, in support of an application to construct a 540 MW gas-fired single cycle peaking power plant in Medway, Massachusetts. Prepared direct testimony, April 1999; oral testimony under cross-examination, July 27, 1999.
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“Readying States for New Greenhouse Gas Rules in the Electricity Sector,” National Governors Association – Workshop for Governors’ Energy Advisors, Washington, D.C., September 22, 2014,

“Natural Gas and Renewable Energy Synergies: Challenges and Opportunities,” North American Energy Standards Board (NAESB), Board Meeting, Houston, September 10, 2014.

“America’s Electricity Evolution: New Policies, Regulations, and Technologies Converging to Change the Future of Power Production and Use,” 2014 NASEO Annual Meeting, Savannah, September 2014.

“Implications for Energy, Economy, and Environment Under the Proposal,” Environmental Council of the States (ECOS), Washington DC, July 31, 2014.

“Regional Options and Strategic Choices,” NARUC Workshop on Regional Compliance Options for Sec. 111d, Washington DC, July 28, 2014.

“111d in Big D: Compliance Options, Regional Approaches, and Where We Go from Here,” NARUC, Dallas, July 16, 2014.

“The National Climate Assessment: What Risks Lie Ahead for the Energy Sector?,” NARUC, Dallas, July 14, 2014.

“The EPA’s new Clean Power Plan proposal: Some suggestions for state action now,” National Association of Clean Air Agencies, Washington, DC, July 13, 2014.

“Changing electric industry dynamics: The role of regulation,” Aspen Institute Energy Policy Forum: Electricity Structure and Regulation, July 7, 2014.

“Natural Gas and Renewable Energy Synergies: Challenges and Opportunities,” Synergies of Natural Gas and Renewable Energy: 360 Degrees of Opportunity, Center for the New Energy Economy (CNEE), Joint Institute for Strategic Energy Analysis (JISEA), Gas Technology Institute (GTI), Bloomberg New Energy Finance, NYC – July 1, 2014.

“EPA’s Clean Power Plan,” Bipartisan Policy Center, June 18, 2014.

“GHG Emission Reductions From Existing Power Plants Under Section 111(d) of the Clean Air Act: Options to Ensure Electric System Reliability,” Electricity Advisory Committee, U.S. Department of Energy, May 8, 2014.

“Climate Solutions: The role of existing nuclear power,” Center for Climate and Energy Solutions, Washington, DC, April 28, 2014.

“Electric Power Systems: The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit,” Harvard Law School, March 20, 2014.

“Section 111(d) of the Clean Air Act: Drivers of Power Sector CO2 Reductions,” Bipartisan Policy Center Workshop on GHG Regulation of Existing Power Plants under the Clean Air Act: Policy Design and Impacts, Washington, DC, December 6, 2013.

“The World of Abundant Natural Gas in the U.S.: Looking Ahead for Power-Sector Implications,” presentation to the Keystone Energy Board, Washington, DC, October 30, 2013.

“Energy: From the Last to the Next 150 years,” keynote address to the Energy Forum of Boston College’s Sesquicentennial Celebration, October 25, 2013.

“Capacity Markets in the Northeast: A Preview of Comments at the FERC Technical Conference on Centralized Capacity Markets in RTOs/ISOs,” presentation to the Independent Power Producers of New York, Saratoga Springs, New York, September 10, 2013.

“Opportunities and Risks of Shale Gas Development,” presentation to the Governors’ Policy Forum on Shale Energy Development, National Governors Association, Denver, September 9, 2013.

“The National Climate Assessment (Draft): Chapter on Energy Supply and Use,” presentation to the National Association of Regulatory Utility Commissioners, Denver, July 23, 2013.

“Climate Change Preparedness in New Jersey: Utilities – Leading Practices and Trends Nationally,” presentation to the New Jersey Climate Adaptation Alliance, Rutgers University, New Brunswick, May 21, 2013.

“Is New England Over-Reliant on Natural Gas?” presentation to the 20<sup>th</sup> Annual Energy Conference of the Northeast Energy and Commerce Association, Groton CT, May 21, 2013.

“Jevons’ Boomerang: Is the rebound effect real? If so, is the effect negative or positive?” presentation to the EE Global Conference, Washington, DC, May 20, 2013.

“Framing the Issues: Growing Tensions at the Interface of the Natural Gas and Electric Industries,” presentation to the MIT Energy Initiative (MITEL) Symposium on “Growing Concerns, Possible Solutions: Gas/Electric Interdependence,” April 16, 2013.

“Unconventional Natural Gas: The Fracking Debate,” Northeast Gas Association, Providence RI, March 15, 2013.

“Unconventional Natural Gas: Trends, Opportunities, and Challenges with America’s New Energy Resource, Center for the American West series on “FrackingSENSE: What We Know, What We Don’t Know, and What We Hope to Learn about Natural Gas Development,” Boulder, Colorado, March 5, 2013.

“Global Energy Security: Upcoming challenges and opportunities (from a U.S. vantage point),” Tufts University Energy Conference – Powering Global Energy Security, Medford, Massachusetts, March 3, 2013.

“Old Made New –Conventional Resource Innovation in the 21st Century,” MIT Energy Conference, Boston, March 2, 2013.

“The Evolving Energy Landscape: Standing at the Crossroads in 2013,” Keynote Address, Kellogg School of Management Energy Conference, Northwestern University, Chicago, February 13, 2013.

“The Starting Point: Interconnection/Grid Planning in the Face of Diversity, Technical Complexity, Uncertainties, Challenges, Opportunities,” Three Interconnections Meeting, NARUC/DOE, Washington D.C., February 6, 2013.

“Electric Power Systems: The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit,” Yale University School of Forestry/Management, February 5, 2013.

“Electric Power Systems: The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit,” New York University Law School, February 4, 2013.

“The Future of Energy,” DOE Energy All Stars, Department of Energy, January 19, 2013.

“The Economic Impacts of RGGI’s First Three Years,” Columbia University Law School – Center for Climate Change Law, Conference on the Future of the Regional Greenhouse Gas Initiative, New York, City, October 22, 2012.

“Reality Check on Energy Conditions,” New Hampshire Energy Summit, Concord, NH, October 22, 2012.

“Natural gas and renewables: Curious bedfellows,” Renewable Energy Law & Policy Summit, University of Denver Sturm College of Law, October 19, 2012.

"Smart Grid and Air Emissions," Gridweek, Washington DC, October 4, 2012.

"C3E Women in Clean Energy Symposium," Keynote Address, Boston, September 28, 2012.

"Natural Gas: Risks and Opportunities – Shale Gas, Hydraulic Fracturing, and Other Facts," EPA Region 1 seminar, Boston, September 27, 2012.

"Finding the Sensible Middle: Policies and Institutional Roles in Unconventional Gas Development," Unconventional Gas Research Forum, Board on Energy and Environmental Systems, National Academy of Sciences, Washington DC, September 11, 2012.

"Unlocking the Potential of Regional Collaboration," California ISO Stakeholders Symposium, Sacramento, September 6, 2012.

"The Context for Compliance with EPA Air Regulations: Power Market Conditions," EPA/DOE/NETL/EPRI/AWMA Power Plant Air Pollution Control Mega-Symposium, Baltimore, August 20, 2012.

"Finding the Sensible Middle: Unconventional Gas Development," 24<sup>th</sup> Annual Natural Gas Strategy Conference & Executive Forum, August 15, 2012.

Intelligence Squared U.S. debate: "No fracking way: The natural gas boom has done more harm than good," Against the proposition (with team mate, Joe Nocera (New York Times)), Aspen, Colorado, July 1, 2012.

"What, Me, Worry? The New Outlook for Natural Gas in New England - How Will Natural Gas Impact New England's Electricity Markets and Reliability," New England Restructuring Roundtable – June 15, 2012.

"China's Energy Challenges and Policy Responses: Observations from a U.S. Vantage Point," Connecticut College Vietnam Program, June 15, 2012.

"Economic Impacts of RGGI: Following the Dollars," presentation to the RGGI Board, June 2012.

"The Energy Scene: Update on a Few Key Issues," presentation to the Ozone Transport Commission, April 23, 2012.

"Shale Gas: Analyzing Risks and Opportunities," Society for Risk Assessment, Boston University – April 9, 2012

"Sustainable Energy Highway," New York State Energy Highway Summit, April 4, 2012.

"Electric and Natural Gas Markets – Interactions, Opportunities, Challenges (with a focus on Texas), Gulf Coast Power Association Spring Meeting, April 3, 2012.

"Natural Gas: Risks and Opportunities – Shale Gas, Hydraulic Fracturing, and Other Facts," Tufts University – Fletcher School, March 29, 2012.

"Fracking and Shale Gas, Part I: Impacts on Energy Markets and Massachusetts," Boston Bar Association, March 6, 2012.

"Electric Power Systems: "The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit," Harvard Law School, February 16, 2012.

"Natural Gas: Policy Recommendations of the NPC, SEAB, and BPC," Energy, Utility and Environment Conference 2012, January 30, 2012.

"Economic Impacts of RGGI: Following the Dollars," Energy, Utility and Environment Conference 2012, January 30, 2012.

"Electric Power Systems: "The Outlook for Electric Transmission: Where You Stand Depends Upon Where You Sit," Yale University School of Forestry and Environmental Studies, January 24, 2012.

“U.S. Renewable Energy Policy: Overview, with comparisons to European approaches,” presentation to the Wharton School, January 3, 2012.

“The Truth about Fracking,” presentation to the New York Energy Forum, December 19, 2011.

“The Clean Energy Economy,” presentation to the Environmental Lawyers, Environmental League of Massachusetts,” November 30, 2011.

“Outlook for the Electric Generating Fleet: Effects of the Upcoming EPA Regulations,” presentation to the Harvard Kennedy School Energy Policy Series, November 28, 2011.

“The National Petroleum Council’s “Prudent Development: Realizing the Potential of North America’s Abundant Natural Gas and Oil Resources,” panel discussion at the NARUC Annual Meeting, St. Louis, November 15, 2011.

“The Future of U.S. Energy Policy: What happens when we assume no changes in the near term....?” Wharton Energy Conference – Energy Frontiers: A Global Perspective, Philadelphia, October 28, 2011.

“Natural Gas: Risks and Opportunities (\* with an emphasis on shale gas developments),” Harvard University Center for the Environment – Future of Energy Series, Cambridge, October 26, 2011.

“An Expanded Toolkit – Environmental Regulations, Natural Gas, and Modernizing the U.S. Generating Fleet,” Great Lakes Symposium on Smart Grid and the New Energy Economy, Chicago, October 19, 2011.

“Pricing in a Western Energy Imbalance Market: Market Clearing Price versus Pay-As-Bid Pricing.” Western Interstate Energy Board – Webinar on the Energy Imbalance Market,” October 18, 2011.

“Federal and State Legislative and Regulatory Outlook: Connecting the Dots: Options for Upcoming Electric Resources,” Emerging Issues Policy Forum, Amelia Island, October 9, 2011.

“Environmental Challenges Associated with Meeting Future Energy Needs: The role of shale gas?” National Association of Clean Air Agencies, Cleveland, October 4, 2011.

“Facing tough realities: Upcoming Energy and Environmental Issues – With a Focus on Electricity and Natural Gas,” National Association of Clean Air Agencies, Cleveland, October 4, 2011.

“Assessing Natural Gas’ New Promises and Controversies: Strategies to Improve the Safety & Environmental Performance of Shale Gas Extraction,” Wisconsin Public Utilities Institute, University of Wisconsin at Madison, October 3, 2011.

“The Outlook for Natural Gas: Role of Shale Gas,” EnerNOC EnergySMART Conference, Boston, September 27, 2011.

“The Outlook for Natural Gas: What does shale gas look like?” NECA Fuels Conference, Marlboro, MA, September 27, 2011.

“Facing tough realities: Upcoming Energy and Environmental Issues – With a Focus on Electricity and Natural Gas,” Environmental Council of the States, Indianapolis, September 25, 2011.

“Electric Reliability Under EPA’s New Air Regulations: What We Know, and What We Can Do About What We Don’t Yet Know,” National Association of State Energy Offices, September 12, 2011.

“The Future of Electricity Generation in the U.S. – A Modest Set of Observations,” 19<sup>th</sup> Annual MIT-NESCAUM Endicott House Symposium (Opportunities for Technology and Policy Innovation in Energy and Environment), August 18, 2011.

“Unconventional Approaches: Part of the Electric Industry’s Response to Upcoming EPA Regulations,” Panel on Infrastructure Reliability and Adequacy at the Aspen Energy Policy Forum (“Changing Currents – Turbulence for the Electric Industry: Is Reliability a Real Issue for power plants given the EPA rules?”), Aspen, July 5, 2011.

“What we know, what we might know, and what we know we don’t know yet,” Joint Meeting of the

NARUC, NASEO, and NACAA states, Baltimore, June 23, 2011.

"Facing tough realities: Energy and environmental issues in 2011 and beyond," Joint Meeting of the NARUC, NASEO, and NACAA states, Baltimore, June 23, 2011.

"China's Energy Challenges and Policy Responses: Observations from a U.S. Vantage Point," Connecticut College Vietnam Program, June 16, 2011.

"Strategies for Addressing Change at FERC and the RTOs: A new lens on responding to near-term changes," FERC/RTO Training Session, Panel on "Beyond Reliability: Economics, driving efficiency, demand response, and clean energy," Sponsored by the Institute Policy Integrity, New York City, July 15th, 2011.

"*May you live in interesting times...*: The Regulators' Tool-Kit in an Era of Uncertainty," Western Conference of Public Service Commissioner, Denver, June 14, 2011.

"Dirty to Clean? The future of Electric Power in America," CERES Conference 2011, Oakland, CA, May 12, 2011.

"EPA Regulations, Power Generation Capacity & Reliability," presentation to the MIT Center for Energy & Environmental Policy Research Workshop, Cambridge, MA, May 5, 2011.

"The Electric Industry's Response to EPA's Upcoming Regulations: Options for Owners and Others," presentation to the Energy Bar Association, Panel on Environmental Regulations, Washington, D.C., May 4, 2011.

"Framing the Issues: Energy and the Environment," Keynote address to the Health Effects Institute, Boston, May 2, 2011.

"Federal Air Pollution Regulations Affecting Fossil Power Plants: Current issues, implications, strategies," presentation to the 6<sup>th</sup> Annual Conference on Tribal Energy in the Southwest: New Opportunities for tribal projects, new policies, regulations and markets, Law Seminars International, Phoenix, April 29, 2011.

"China and U.S. Energy and Environmental Policy Challenges: Learning from Each Other, In It Together," presentation to China Energy & Environment Conference, Harvard University, April 9, 2011.

"EPA's MACT, Water Cooling Intake and Transport Rules: What now for power generation?" presentation to SNL Energy Webinar, April 12, 2011.

"Policies for a Secure Energy Future: Issues in Supply and Demand," presentation to the Aspen Institute Congressional Program's meeting on Energy Security: Policy Considerations in the New Congress, San Juan, Puerto Rico, February 22-27, 2011.

"Responding to EPA's Regulations Affecting Coal Plants: Using a 21<sup>st</sup> Century Toolkit (or, upgrading to the "Champ" from the "Classic")," presentation to the Panel on Environmental Regulations and Impacts on Electricity System Infrastructure, 2011 DOE/NARUC National Electricity Forum, Washington, D.C., February 16, 2011.

"Responding to EPA's Regulations Affecting Coal Plants: Using a 21<sup>st</sup> Century Toolkit (or, upgrading to the "Champ" from the "Classic")," presentation to the Roundtable on the EPA Regulations, NARUC Winter Meeting, Washington, D.C., February 14, 2011.

"Local, State and Regional Coordination and Solutions: Non-conventional capacity and energy resources," presentation to the Bipartisan Policy Center's Workshop on Power Sector Environmental Regulations, Washington, D.C., January 19, 2011.

"Renewable Energy in New England," presentation to the New Hampshire Business and Industry Conference, Concord, New Hampshire, December 7, 2010.

“Framing the Issues: Energy and the Environment,” presentation to the annual meeting of the National Academy of Public Administration, Washington, D.C., November 18, 2010.

“Toolkit for Ensuring Reliable, Economic Responses to EPA’s Proposed Air Regulations,” presentation on the panel on “The Climate Syndrome: Without Congressional Action, What Do State Regulators Need to Know?” NARUC Meeting, Atlanta, Georgia, November 17, 2010.

“Challenges for Recovering Costs During a Push for Cleaner Generation and More Efficient Energy Use,” Law Seminars International conference (Utility Rate Cases), Boston, November 9, 2010 (conference co-chair).

“Public Policy for Advanced Energy Technology,” presentation to the New York Advanced Energy Technology Conference, New York City, November 8, 2010.

“Energy Future: Bridging the Gap,” presentation to the Wharton Energy meeting, Philadelphia, October 28, 2010.

“Upcoming Power Sector Environmental Regulations: Framing the issues about potential reliability/ cost impacts,” presentation to the National Commission on Energy Policy Workshop on Power Sector Environmental Regulations, Washington, D.C., October 22, 2010.

“Vulnerability of the Gulf Coast Energy Infrastructure,” presentation to the Deltas 2010 – World Deltas Dialogue, America’s Energy Coast Policy Forum on The Future of the U.S. Gulf Coast Energy Infrastructure in the Face of Changing Climate,” New Orleans, October 20, 2010.

“Today’s Energy Landscape: Scanning the terrain – with tips for a safe journey,” presentation to the annual meeting of the National Association of State Energy Officials, September 30, 2010.

“2020: What can we expect? Where we are now, and how it influences where we’ll be a decade from now,” Law Seminars International conference, “Energy in the Northeast,” September 29, 2010.

“Today’s Energy Landscape: Exploring economic, environmental and technological trends,” presentation to the annual meeting of the Independent Power Producers of New York, September 22, 2010.

“Transforming America’s Energy Systems: Challenges and opportunities along the nation’s coastal and marine environments,” Annual Lecture at the Metcalf Institute, University of Rhode Island, June 8, 2010.

“New England at the Crossroads: The Intersection between Regulatory Policy and Future Energy Supply,” presentation to the Northeast Energy and Commerce Association, 17th New England Energy Conference, Green Thumb on the Scale: Impact on Future Energy Choices, June 8, 2010.

“Is Competition Dead?” presentation to the Annual Meeting of the New England Conference of Public Utility Commissioners, May 17, 2010.

“Why it is so Darn Hard to Adopt Advanced Energy Technologies, But So Worth the Effort,” presentation to the Tufts University Energy Conference, “The Evolution of Energy,” April 17, 2010.

“The Prospects for Natural Gas, Coal, and Nuclear Power in America’s Energy Future,” discussions with members of Congress at the Aspen Institute’s Congressional Program on Energy Security and Climate Change: Policy Challenges for the Congress, April 6-10, 2010.

“Why is Modernizing Our Energy Technologies So Darn Hard, But Worth the Effort?” presentation to the MIT Energy Initiative Lecture Series, February 2, 2010.

**SERVICE ON BOARDS OF DIRECTORS (PUBLIC COMPANIES, PRIVATE COMPANIES, NON-GOVERNMENTAL ORGANIZATIONS)**

Chair, ClimateWorks Foundation Board of Directors (2013 to present).

Member and Vice-Chairman, World Resources Institute Board of Directors (2009 to present).



Chair, Energy Foundation Board of Directors, 2000 to 2011; Vice-Chair, 1999-2000; Director, 1997 to 2011; Director, 2013 to present.

Member, Keystone Board of Directors (and Member, Keystone Energy Board) (2016 to present).

Member, Resources for the Future Board of Directors (2014 to present).

Member, Alliance to Save Energy Board of Directors (2011 to present).

Member and Vice-Chairman, World Resources Institute Board of Directors (2009 to present).

Member, EnerNOC, Inc. Board of Directors (February 2010 to May 2013).

Member, Evergreen Solar, Inc. Board of Directors, 2008 to 2011.

Member, Ze-gen Inc. Board of Directors, 2009 to 2011.

Member, Renegy Holdings Board of Directors, 2007 to 2009.

Member, Clean Air Task Force Board of Directors, 2008-June 3, 2013.

Member, Catalytica Energy Systems Inc. Board of Directors, 2001 to 2007.

Member, Climate Policy Center Board of Directors, 2001 to 2007.

Member, NorthEast States Center for a Clean Air Future, Board of Directors, 1998 to 2010.

Chair, Clean Air–Cool Planet / Climate Policy Center Board of Directors, 2004 to 2009; director, 1999-2014.

Member, ACORE (American Council on Renewable Energy) Board of Directors, 2006-2007.

Member, Electric Power Research Institute (EPRI) Board of Directors, 1998 to 2003, 2005-2006.

Chair, Electricity Innovations Institute, Board of Directors, 2002 to 2004; Director, 2001 to 2002.

Director, The Randers Group (subsidiary of Thermo TERRATEK) Board of Directors, 1997 to 2000.

Director, Thermo ECOTEK Corporation Board of Directors, 1996 – 1999.

## **OTHER PROFESSIONAL ACTIVITIES**

Chair and Member, Electricity Advisory Committee (Department of Energy) (2015-present).

Chair, External Advisory Council, National Renewables Energy Laboratory (2009 to present).

Member, National Academy of Sciences Committee on Enhancing the Resiliency of the Nation’s Electric Power Transmission and Distribution System (2016 to present).

Member, Columbia University, Center for Global Energy Policy (2014 to present).

Member, New York Independent System Operator, Environmental Advisory Council, 2004 to present.

Chair, Aspen Institute Energy Policy Forum (2015).

Member, Innovation Review Panel, “51<sup>st</sup> State” Initiative of the Solar Electric Power Association (2015).

Chair, External Review Panel for the Clean Energy Ministerial (2015).

Chair, Aspen Institute Energy Policy Forum (2014).

Participant in studies of the Colorado State University’s Center for Clean Energy Economy (“*Powering Forward: Presidential and Executive Agency Actions to Drive Clean Energy in America*”) (January 2014).

Co-Lead Convening Author, Energy Supply and Use Chapter, National Climate Assessment (2012-2014).

Member, Committee on Risk Management and Government Issues in Shale Gas Development, of the National Academy of Sciences, Board on Environmental Change and Society (of the Division of Behavioral and Social Sciences and Education) (2013-2014).

Co-chair, Bipartisan Policy Center's Cyber-security and the Electric Grid project (2013-2014).

Co-chair, National American Energy Standards Board (NAESB) Gas-Electric Harmonization Committee (2012, 2014).

Alliance Commission on National Energy Efficiency Policy (2012-2013): Report (Energy 2030: Doubling Energy Productivity by 2030; February 2013).

Bipartisan Policy Center – Energy Project (2011 to present): Report (“America’s Energy Resurgence: Sustaining Success, Confronting Challenges” (February 2013).

U.S. Secretary of Energy Advisory Board (July 2010 to May 2013). Member of the Natural Gas Subcommittee examining shale gas development. (2011-2013).

Chair, Policy Subgroup of the National Petroleum Council's study on North American Gas and Oil Resource Development (2010-2011).

Visiting Professor, Department of Urban Studies & Planning, Massachusetts Institute of Technology (Spring 2010).

Massachusetts Clean Energy Grand Prize Judge (2010).

World Resources Institute: Chair of Presidential Search Committee (2011).

Co-Lead, Department of Energy Agency Review Team, Obama/Biden Presidential Transition Team, Washington D.C., 2008-2009 (while on full-time leave for four months from Analysis Group).

Chair, Massachusetts Ocean Advisory Commission (2008 to 2010).

Member, Blue Ribbon Commission on Cost-Allocation Issues for Transmission Investment, WIRES, 2007.

Member, National Academy of Sciences Committee on Enhancing the Robustness and Resilience of Electrical Transmission and Distribution in the United States to Terrorist Attack, 2005 to 2008.

Member, National Commission on Energy Policy, member (2002 to 2011); co-chair (2009-2011).

Member, Advisory Committee, Carnegie Mellon Electricity Industry Center (2001 to 2009).

Member, Policy Advisory Committee, China Sustainable Energy Project—A Joint Project of The Packard Foundation and The Energy Foundation (1999 to present).

Co-Chair, Energy/Environment Working Group, Governor Deval Patrick Transition Team (2006-2007).

Presenter, Economic Issues, National LNG Forums, U.S. Department of Energy, Boston Massachusetts; Astoria, Oregon (2006).

Chair of the Technical Review Panel, Critical Infrastructure Protection Decision Support Systems (CIP-DSS), Argonne, Los Alamos and Sandia National Laboratories (2006).

Advisory Council member, New England Energy Alliance (2005-2006).

Chair of the Laboratory Direction's Division Review Panel for the Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory (2005).

Chair, Ocean Management Task Force, Commonwealth of Massachusetts (2003-2004).

Co-Chair, RTO Futures: Regional Power Working Group (2001-2002).

Member, Florida Energy 2020 Study Commission, Environmental Technical Advisory Committee (2001).

Technical Advisor, Mid-Atlantic Area Council/PJM, Dispute Resolution Procedure (1998 to 2008).

Member, "ISO-New England" (Independent System Operator) Advisory Committee (1998 to 2003).

Member, United States Department of Energy, Electricity Reliability Task Force (1996-1998).

Member, Harvard Electricity Policy Group (1993 to 2005).

## **HONORS AND AWARDS**

Mary Kilmarx Award for lifetime work on good government, clean energy and the environment, presented by NARUC's Committee on Energy Resources and the Environment, November 2015.

Lifetime Achievement Award, U.S. Department of Energy/MIT/Clean Energy Ministerial C3E (Clean Energy Education & Empowerment) Initiative, 2014.

Champions Award, Charles River Watershed Association, 2013

Leadership Award, New England Women in Energy and the Environment, 2013.

Clean Energy Hall of Fame, New England Clean Energy Council, 2012.

DOE Women in Clean Energy Initiative, C3 Ambassador, 2012

Climate Champion Award, Clean Air – Cool Planet, 2009.

Distinguished Alumna Award, Scripps College, Claremont, CA, 1998

Award for Individual Leadership in Public Service, *The Energy Daily*, 1995

Special Recognition Award, Outstanding Contribution to the Industry, Assn of Energy Engineers, 1994

Leadership Award, National Association of State Energy Officials, 1994

Commencement Speaker and Honorary Doctorate of Laws, Regis College, Weston, MA, 1992.