

RESUME

John J. Plunkett

Green Energy Economics Group, Inc.

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Trained as an economist, John Plunkett has worked for over 30 years in energy utility planning, concentrating on energy efficiency and renewables investments as resource and business strategies for energy service providers. He has played key advisory and negotiating roles on all aspects of electric and gas utility demand-side management, including residential, industrial and commercial program design, implementation, oversight, performance incentives, and monitoring and evaluation, and their respective roles in business, regulatory, ratemaking, resource planning and policy decisions. He has led, prepared or contributed to numerous analyses and reports on the economically achievable potential for efficiency and renewable resources.

Plunkett has worked throughout North America and in three Chinese provinces. He has provided expert testimony before regulators in Connecticut, Delaware, the District of Columbia, Florida, Illinois, Indiana, Louisiana, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, and Vermont, as well as in the Canadian provinces of British Columbia, Ontario, and Quebec.

EMPLOYMENT HISTORY

2005-present

*Partner and co-founder, **Green Energy Economics Group, Inc.**, Bristol, VT*

Three-person consultancy specializing in energy-efficiency and renewable resource portfolios investing in electricity and gas savings. Technical and strategic assistance with development, design, economic and financial analysis, planning, administration, implementation management support, oversight, performance verification and evaluation, design of performance incentive and pricing mechanisms, and regulatory and ratemaking treatment of utility-funded electricity and gas energy-efficiency portfolios.

1996 – 2005

*Partner and co-founder, **Optimal Energy, Inc.**, Bristol, VT.*

Strategic planning, implementation management and regulatory support on energy-efficiency investment by regulated and unregulated businesses. Lead consultant for Natural Resources Defense Council on demand-side management portfolio design and economic analysis in two Chinese provinces. Lead author and expert witness on report recommending revamped performance incentive for Connecticut efficiency program administrators, on behalf of Office of Consumer Counsel. Led statewide efficiency and renewable potential study for New York and efficiency potential study for Vermont. Lead author and expert witness on assessment of economically achievable transmission capacity from efficiency resources for Vermont's

transmission utility. Advisor on economic analysis of clean energy initiative for the Long Island Power Authority, program cost-effectiveness in Massachusetts and New Jersey collaboratives, and regional market transformation initiatives for Northeast Energy Efficiency Partnerships.

1990 – 1996

Senior Vice President, Resource Insight, Inc., Middlebury, VT.

Provided analysis of DSM resource planning/acquisition and integrated resource planning in numerous states. Investigated regulatory and planning reforms needed to integrate demand-side resources with least-cost planning requirements by public utility commissions. Prepared, delivered and/or supported testimony on wide variety of IRP, DSM, economic, cost recovery and other issues before regulatory agencies throughout North America. Consulted and provided technical assistance regarding utility filings. Responsible for presentations and seminars on DSM planning and evaluation.

1984 – 1990

Senior Economist, Komanoff Energy Associates, New York, NY.

Directed consulting services on integrated utility resource planning. Testified on utility resource alternatives, including energy-efficiency investments and independent power. Examined costs and benefits of resource options in over twenty-five proceedings. Supported major investigation into utility DSM investment and integrated resource planning. Designed and co-wrote microcomputer software for evaluating the financial prospects of customer-owned power generation. Wrote and spoke widely on integrated planning issues. Contributed to least-cost planning handbooks prepared by the National Association of Regulatory Utility Commissioners and by the National Association of State Utility Consumer Advocates.

1978 – 1984

Staff Economist, Institute for Local Self-Reliance, Washington, D.C.

Project development and management for a non-profit consulting firm specializing in energy and urban economic development. Project manager and economist for an investigation into the economic impact on small generators from electric utilities' grid-interconnection requirements. Coordinated research by three electrical engineers, and analyzed the impact of interconnection costs on wind, hydroelectric and cogeneration projects in seven utility service areas in New York. Provided technical coordination in cases before the District of Columbia Public Service Commission involving gas and electric utility demand management investment, non-utility generation pricing, both for the D.C. Office of People's Counsel.

1977-78

Energy Project Director, D.C. Public Interest Research Group, Washington, D.C. 1977. Led energy research and advocacy on campuses of Georgetown and George Washington Universities.

EDUCATION

B.A., Economics, with Distinction, *Phi Beta Kappa*, Swarthmore College, Swarthmore, PA, 1983. Awarded departmental Adams Prize in Quantitative Economics.

(Georgetown University School of Foreign Service, Washington, DC, 1975-1977.)

EXPERIENCE

ONGOING AND RECENT ASSIGNMENTS -- 2006-PRESENT

Vermont

Senior Policy Advisor to Efficiency Vermont, the world's first Energy Efficiency Utility, operating under contract with the Vermont Public Service Board to deliver statewide energy-efficiency programs for the customers of Vermont's electric utilities. Senior management team member from 2000 through 2007; led program development and planning, 2000-2002. Responsibilities include economic, policy, and evaluation research, analysis and advice. Contract negotiation team member advising on performance goals and incentive mechanism for four successive contracts over twelve years. Testified in support of 12-year order of appointment granted by the PSB December 2010. Recent assignments include technical direction of 20-year forecast of electricity savings under alternative investment scenarios.

Program design and regulatory support for 5-year investment of \$9 million Energy Efficiency Fund, supplementing Efficiency Vermont investment, on behalf of Green Mountain Power. February 2007 – present. Rebuttal testimony on achievable value from additional energy-efficiency investment in utility service area, on behalf of Green Mountain Power in its merger approval application in Docket No. 7213. December 2006-January 2007; January 2012-present.

Pennsylvania

Conservation program design, implementation planning, and regulatory support, for Philadelphia Gas Works. August 2008 – present. Testimony before the Pennsylvania Public Utility Commission in Docket R-2009-2139884, December 2009 and April 2010.

Analysis and report on costs and benefits of meeting all statewide load growth with energy-efficiency investment, on behalf of Citizens for Pennsylvania's Future (Pennfuture). September 2007.

Direct and surrebuttal testimony for Citizens for Pennsylvania's Future (Pennfuture) on appropriate levels of efficiency portfolio investment in two rate cases before the Pennsylvania Public Utility Commission: Docket Nos. 00061366 and 00061367 re Metropolitan Edison Company and Pennsylvania Electric Company; and Docket No. R-00061346 re Duquesne Light Company. May - August 2006.

Wisconsin

Cost-effectiveness calculator development and application assistance for Shaw Engineering and Infrastructure, administrator for Wisconsin's Focus On Energy gas and electric energy efficiency investment portfolio. June 2011 – present.

Oklahoma

Analysis, technical assistance and expert testimony on potential for energy-efficiency investment to substitute for fossil generation in proceedings before the Oklahoma Commerce Commission on behalf of the Sierra Club, May 2011 – present.

Illinois

Cost-effectiveness calculator development, oversight of cost/benefit analysis, and regulatory support for 3-year energy-efficiency portfolio for Peoples Gas. September 2008 – present.

Rebuttal and surrebuttal testimony opposing disallowances recommended by ICC Staff for Peoples Gas. April – September 2010; December 2011 – present.

New York

Advisor on energy-efficiency portfolio design and implementation, for the Economic Development Corporation of the City of New York, in three proceedings before the New York Public Service Commission. One is the PSC's investigation into an energy-efficiency portfolio standard for meeting statewide energy savings goals of 15% by 2015. The second is a collaborative effort with Consolidated Edison's gas division to design a portfolio of gas efficiency programs. The third is evaluation and future redesign of Con Ed Electric's \$125 million network-targeted demand-side program. July 2007-December 2008.

Connecticut

Testimony regarding long-range energy-efficiency procurement plan of the Energy Conservation Management Board, on behalf of the Connecticut Office of Consumer Counsel. August – October 2008.

Florida

Direct testimony on the effect of economically achievable energy efficiency on the need for new coal-fired generation, on behalf of the Sierra Club and other environmental intervenors, Florida Public Service Commission Docket No. 070098-EI. March-April 2007.

British Columbia, Canada

Direct testimony on reasonableness of gas DSM Plan by Fortis Energy Utilities before the British Columbia Utilities Commission, BCUC Project No. 3698627, on behalf of the BC Sustainable Energy Association and Sierra Club (BC Chapter), May – November 2011.

Direct testimony and technical support on assessment of FortisBC Electric's long-term DSM plan, before the BCUC, on behalf of BCSEA/SCBC, August 2011 – present.

Direct testimony and technical support on assessment of BC Hydro's long-term DSM plan, before the BCUC, on behalf of BCSEA/SCBC, November 2008 – March 2009; October 2011 - present.

Direct testimony on assessment of Terasen Gas conservation plans before the BCUC, on behalf of BCSEA/SCBC. October 2008.

Direct testimony on energy-efficiency investment spending and savings, British Columbia Hydro and Power Authority, 2006 Integrated Electricity Plan and Long Term Acquisition Plan, Project No. 3698419; and F2007/F2008 Revenue Requirements Application, Project No. 3698416, on behalf of BCSEA/SCBC et al. September 2006 – January 2007.

People's Republic of China

Central Government

Consulting team member on a project developing a national DSM implementation manual for China, sponsored by the National Development and Reform Commission, led by the Natural Resources Defense Council, in cooperation with California's investor-owned utilities, and funded by the international Renewable Energy and Energy Efficiency Programme (REEEP). Wrote chapters concerning performance indicators and cost-effectiveness analysis. 2007-Spring 2008. Manual approved by NDRC May 2009 and issued May 2010.

Guangdong Province

Consultant for the Institute for Sustainable Communities to assist Chinese experts with technical, economic, and financial assessments of industrial retrofit projects. Economic and financial assessment of efficiency retrofits to a ceramics manufacturing plant. 2007-2008. Training and technical assistance to Chinese trainers on economic and financial assessment of energy-efficiency and renewable investment projects in Guangdong and Jiangsu provinces. 2009-2010.

Team leader for Chinese and international consultants on a pre-feasibility analysis for the Asian Development Bank of a 24-year loan to support a \$120 million demonstration Efficiency Power Plant (EPP) project in Guangdong province, focusing on industrial, commercial and institutional retrofits. June 2006 – 2007. ADB Board of Directors unanimously approved the loan and its first tranche of projects in June 2008.

Jiangsu Province

Consulting team leader on development, assessment, and implementation of demand-side management investment portfolios for China, for the Natural Resources Defense Council. (July 2003 – 2007) Responsible for program implementation planning and support (2005-2007). Led modification and application of US-based program and portfolio economic analysis tool for DSM planning. Assisted Jiangsu Province with design and planning for first-stage implementation of Efficiency Power Plant (EPP) programs investing \$12 million annually on high-efficiency retrofits to industrial motors and drives and commercial lighting and cooling. Directed economic and financial analysis of industrial retrofits for several manufacturers to determine financial incentives offered by the program. October 2005 – 2007. Training and technical support on economic and financial analysis of industrial retrofit projects for structuring and negotiating financial incentive offers to customers (2007-2008).

Regulatory Assistance Project

Technical and policy advice on clean energy investment on Global Power Sector Best Practices Project. June 2011 – present.

PRIOR ASSIGNMENTS (OPTIMAL ENERGY) -- 1996-2005

- Policy and economic advisor for Massachusetts energy efficiency collaboratives, focusing on regulatory, cost-effectiveness, shareholder incentives and other policy issues and strategies, on behalf of Massachusetts Collaborative Non-Utility Parties. (January 1999 – 2005)
- Co-author (with Optimal Energy and Vermont Energy Investment Corporation), Comments on Efficiency Maine's 2006-2008 Program Plan, on behalf of Maine's Office of Public Advocate. September 2005.
- Team leader providing technical assistance supporting rulemaking to implement energy-efficiency provision of renewable portfolio standard for Pennsylvania, on behalf of Citizens for Pennsylvania's Future (PennFuture). Lead consultant on development of protocols for measuring savings from energy-efficiency investments as tradable credits toward the electricity resource portfolio standard. Protocols adopted by the Pennsylvania Public Utilities Commission. 2005. (February – September 2005)
- Leader of analysis of economically achievable potential for energy-efficiency resources to offset loss of output in the event of early retirement of the Indian Point nuclear generation station, on behalf of the National Academy of Sciences. May-October 2005.
- Co-author (with Paul Chernick) of testimony assessing planned energy-efficiency investments by British Columbia Hydro, on behalf of the British Columbia Sustainable Energy Association and British Columbia Sierra Club, August 2005.
- Written testimony recommending energy-efficiency portfolio investment levels and savings goals in utility merger application before the Pennsylvania Public Utility Commission, Joint Application of PECO Energy Company and Public Service Electric and Gas Company for Approval of the Merger of Public Service Enterprise Group with and into Exelon Corporation, on behalf of the Pennfuture Parties, June 28, 2005.
- Co-author of and expert witness supporting "Getting Results: Review of Hydro Quebec's Proposed 2005-2010 Energy Efficiency Plan," before the Quebec Energy Board, on behalf of a coalition of business, municipal, and environmental groups (January-March 2005)
- Testimony (with Ashok Gupta) before the New York Public Service Commission supporting joint settlement proposal for 300 MW of additional efficiency investment in Con Edison territory, on behalf of the Natural Resources Defense Council, Pace Energy Project, and the Association for Energy Affordability (December 2004 – January 2005).

- Report and testimony on performance incentives for administrators of conservation and load management programs in Connecticut, on behalf of Connecticut Office of Consumer Counsel. (February 2003 – August 2004). DPUC adopted recommended performance incentive mechanism for 2006 program year.
- Project leader, including report and testimony, for consulting team projecting potential for demand-side resources to defer the need for the Northwest Reliability Project, a major transmission upgrade, on behalf of Vermont Electric Power Company. (November 2001 – December 2004)
- Report and testimony on Opportunities for Accelerated Electrical Energy Efficiency in Québec 2005 – 2012, on behalf of Regroupement National des Conseils Régionaux de L'environnement du Québec, Regroupement des Organismes Environnementaux en Energie and Regroupement pour la Responsabilité Sociale des Entreprises. (March – June 2004)
- Project leader for consulting team assessing technical, achievable and economic potential for energy-efficiency and renewable resources in New York State and five sub regions over 5, 10 and 20 years, on behalf of New York State Research and Development Authority. (January 2002 – August 2003)
- Project leader for consulting team updating statewide projection of economically achievable efficiency potential for state of Vermont, on behalf of the Vermont Department of Public Service. (October 2001 – 2003)
- "A Conservation Contingency Plan for Indian Point: Using California's Success Beating Blackouts to Replace Nuclear Generation Serving Greater New York," prepared for the Natural Resources Defense Council, October 2003.
- "The Achievable Potential for Electric Efficiency Savings in Maine." Projected and compared 10-year C&I costs, savings and benefits (based on technical potential analysis prepared by Exeter Associates). Expert testimony on behalf of the Office of Public Advocate, before the Maine PUC. (October 2002)
- Project leader for consulting team supporting utilities in targeting demand-side resources to optimize distribution investment planning in statewide distributed utility planning collaborative, on behalf of the Vermont Department of Public Service. (September 2001 – December 2002) Led development of DSM scoping tool, an MS Excel spreadsheet for preliminary analysis of the economically achievable potential for energy-efficiency to defer or displace planned distribution investments.
- Advisor on economic analysis for program planning and implementation of multi-year statewide energy-efficiency programs in the New Jersey Clean Energy Collaborative involving all the state's electric and gas utilities and the Natural Resources Defense Council. (April 2000 – June 2003, on behalf of NRDC). Co-directed collaborative work on program development, planning, and implementation for Conectiv. (November 1996 – 2000)
- Analysis and testimony before the Connecticut Siting Council on integrating potential demand reductions from targeted demand-side resources into need assessment for

transmission upgrades, on behalf of the Connecticut Office of Consumer Counsel. Docket No. 217. (February 2002 – February 2003)

- Advice and negotiation on policy and scope of utility activities regarding targeted DSM to optimize distribution investment planning, involving Consolidated Edison, PECO Energy, and Orange and Rockland Utilities, on behalf of the Natural Resources Defense Council (Con Ed and PECO) and Pace Energy Project (O&R). (1999 – 2000)
- "Examining the Potential for Energy Efficiency in Michigan: Help for the Economy and the Environment," for American Council for an Energy-Efficient Economy (ACEEE). Analysis and report projecting costs and benefits of aggressive energy-efficiency investment. (January 2003)
- Led consulting team in the preparation of detailed recommendations for implementing strategic plan for acquiring clean power resources for the Jacksonville Electric Authority. (May – September 2001)
- Consultant to Citizens Utilities Corporation, supporting planning and management of investments pursuing maximum achievable levels of optimally cost-effective energy-efficiency in its Vermont Electric Division. (1997 – 2001)
- Consultant to PEPCo Energy Services on building energy-efficiency into retail service offerings. (2000 – 2001)
- Consultant to California Board for Energy-Efficiency, the agency responsible for administering wires-charge funded statewide energy-efficiency programs. Technical service consultant on nonresidential program design. (1997 – 1999)
- Lead consultant on energy product development for consumer energy cooperative, on behalf of Vermont Energy Futures, a non-profit organization spearheading development of a consumer-owned energy cooperative that will bundle electricity with energy-efficiency, renewables, and fossil fuels for residential, low-income, and small non-residential customers. One of key team members who prepared grant application to federal Health and Human Services Department for \$800,000 grant supporting development of the co-op. (1997 – 2000)
- Led feasibility analysis and prepared preliminary business plan for bundling electricity, fuel, efficiency services, and green power initially targeting low-income and environmentally-conscious consumers, on behalf of the Energy Coordinating Agency and Conservation Consultants, Inc. (July – December 1997). Consultant on energy and business strategy and planning for Energy Cooperative Association of Pennsylvania, a buyers' cooperative offering electricity, fuel oil, energy-efficiency, and renewable energy to residential and non-profit consumers in eastern and western Pennsylvania. (1998 – July 1999)
- Lead consultant on energy efficiency program design and planning for Maryland Office of People's Counsel and Maryland Energy Administration. Led research, analysis, and program

descriptions and budgets for use in restructuring workshops and legislative development on efficiency and renewable programs supported by system benefits charge. (1998)

- Lead consultant for the Vermont Department of Public Service regarding energy-efficiency investment during and after the transition to electricity restructuring. Lead author of *The Power to Save: A Plan to Transform Vermont's Efficiency Markets*, the DPS filing which calls for development of centrally delivered statewide core programs by an efficiency utility. Prepared written testimony, on behalf of the Vermont Department of Public Service in Docket 5980. (1997 – 1999)
- Technical support to the Burlington (VT) Electric Department in developing energy efficiency programs and policies as part of their resource and business planning. (November 1996 – May 1997)
- Consultant to Vermont Senate Natural Resources and Finance Committees on efficiency and renewable policies in restructuring legislation passed by the Senate but not adopted by the House. Provided technical assistance to support drafting and passage of utility restructuring legislation (S.62). (1997)
- Support to the Vermont Department of Public Service in assessing the performance and expenditures of Green Mountain Power's commercial and industrial DSM programs. Also provided support to the DPS in the evaluation of GMP's actions surrounding the Vermont Joint Owners contract with Hydro Quebec including prudence. (1997).
- Direct testimony and cross-examination relating to the future of DSM under the proposed BG&E/PEPCo utility merger. Case No. 8725 In the matter of Application of BGE, PEPCo & Constellation Energy Corporation for Merger. (1996)
- Written report to the Ontario Energy Board assessing the 1997 DSM Plan filed by Union and Centra Gas LTD in light of prior OEB decisions, as well as specific program plans for residential and non-residential customers. The report also addressed potential changes in gas DSM regulation, cost recovery, and incentives. [*Assessment of the Centra/Union Gas Fiscal 1997 DSM Plan*, Plunkett, Hamilton, and Mosenthal, August 30, 1996.] Testimony before the OEB concerning the report's findings and recommendations. Union/Centra Rate Case, EBRO 493/494. Also prepared a report and testified on Union Gas's DSM program design in EBRO 496/94/95. (July 1996 – November 1996)

PRIOR ASSIGNMENTS (RESOURCE INSIGHT) – 1990-1996

- Consultant on energy-efficiency program design, planning, and policy issues for Maryland utilities including Potomac Electric, Baltimore Gas and Electric, Potomac Edison, Delmarva Power and Light, Southern Maryland Electric Cooperative, Washington Gas, on behalf of Maryland Office of People's Counsel. Coordinator and lead negotiator on DSM collaboratives for Washington Gas, Potomac Electric, Baltimore Gas and Electric, Delmarva Power and Light and Potomac Electric. Projects have included resource planning and allocation, program design, policy, cost recovery, mechanism design, and monitoring and evaluation planning. (1989 – 1997)

- Prepared testimony and supported settlement negotiations concerning the DSM Plan of Jersey Central Power and Light on behalf of the Mid Atlantic Energy Project and New Jersey Public Interest Research Group. Analyzed DSM policy and commercial and industrial programs. Docket No. EE9580349 In the matter of Consideration and Determination of Jersey Central Power and Light Company's Demand Side Management Resource Plan filed pursuant to N.J.A.C. 14:12. (1995)
- Support to the Iowa Office of Consumer Advocate with the review and analysis of MidAmerican's, Interstate Power's and Iowa Electric Services' existing energy efficiency plans. Developed proposals for changes to and modifications of the utilities commercial and industrial energy efficiency programs. (1995 – 1996)
- Testimony and technical support for the Iowa Office of Consumer Advocate in settlement negotiations re IES Utilities C/I DSM programs. Docket No. EEP-95-1. (February 1996)
- Technical support to Florida Power Corporation on development of alternative DSM programs for commercial and industrial customers. (1995 – 1997)
- Supported the development of testimony and negotiations regarding DSM program alternatives for Carolina Power & Light, on behalf of the Southern Environmental Law Center. Docket No. 92-209-E. (1995 – 1996)
- Reviewed and commented on Consumer Gas' C/I DSM programs on behalf of the Green Energy Coalition. (1995)
- Support to the Vermont Department of Public Service in negotiation settlement with Green Mountain Power regarding DSM program design and planning, focusing on target retrofits in load centers under T&D capacity constraints, and increased participation and comprehensiveness of lost-opportunity programs. (1995)
- Consulting services and expert testimony on behalf of the Green Energy Coalition concerning Ontario Hydro's DSM plans and acquisition of lost-opportunity resources. Before Ontario Energy Board H.R. 22. re: Ontario Hydro 1995 Rates and Spending. (1994) and re: Ontario Hydro's Bulk Power Rates for 1993. Ontario Energy Board HR-21. (1992)
- Reviewed Tennessee Valley Authority programs and environmental planning for the Tennessee Valley Energy Reform Coalition. (November 1994 – July 1995)
- Prepared and defended direct testimony on gas and electric Demand-Side Management/Integrated Resource Planning guidelines before the North Carolina Public Utilities Commission. Docket No. E-100, SUB 64A in the matter of Request by Duke Power Company for Approval of a Food Service Program, Docket E-100, SUB 71 In the matter of Investigation of the Effect of Electric IRP and DSM Programs on the Competition Between Electric Utilities and Natural Gas Utilities. (1994)
- Prepared and defended expert testimony and led analyses of demand-side management and fuel switching opportunities in Central Vermont Public Service territory, on behalf of the

Vermont Department of Public Service. Project involved detailed analysis of measure costs, savings, and cost-effectiveness. Vermont Public Service Board, Docket 5270-CVPS-1&3. (1994)

- Prepared and defended expert testimony for the Vermont Department of Public Service on prudence of demand-side management in CVPS rate case. Vermont Public Service Board, Docket 5724. (May – August 1994)
- Directed and supported the preparation of joint testimony for Enersave, an efficiency service provider. Before the New York Public Service Commission, Case No. 94-E-0334. (September 1994)
- Joint testimony with Jonathan Wallach for the New York Public Utility intervenors reviewing 1994 LILCo DSM Plan. Before the New York Public Service Commission. P.S.C. Case No. 93-5-1123. (May 1994)
- Contributed to the critique of PECO Demand-Side Management Plan for the Nonprofits Energy Savings Investment Program. (February 1994)
- Provided direct testimony in a proceeding to investigate restrictions on DSM that could give one utility (gas or electric) an unfair competitive advantage over another (electric or gas, respectively). Before the Louisiana Public Service Commission Docket No. U-20178 Re: Louisiana Power & Light Company Least Cost Resource Plan. (1994)
- Provided expert testimony in support of PEPCo's DSM implementation. Before the Public Service Commission of the District of Columbia. Case No. 929. (1993)
- Prepared written testimony for the Maryland Office of People's Counsel analyzing potential for demand-side resources to offset need for power for proposed coal-fired plant. Delmarva Power & Light Company Dorchester Power Plant Certificate of Public Convenience and Necessity. Maryland PSC Case No. 8489. (January 1993)
- Coordinated testimony assessing the planning process, screening analyses, and cost-recovery proposals of the Detroit Edison Company for its demand-side management programs. Estimated potential levels of savings; identified improvements to the utility's proposed cost-recovery, lost-revenue, and incentive mechanisms; and recommended regulatory signals consistent with least-cost planning. Provided economic and regulatory advice, consulting services, and oversaw preparation of testimony. Michigan PSC Case No. U-10102. (1992)
- Economic and regulatory advice, consulting services, and supervision of testimony preparation. Provided technical services encompassing demand-side management program monitoring and evaluation, cost recovery, and review of second efficiency plans. Before the Iowa Utilities Board, Iowa Power and Light Docket No. EEP-91-3 and Interstate Power Company Docket No. EEP-91-5. (1992)
- Consulting on policy and resource-allocation issues on behalf of the Vermont Department of Public Service as part of DSM-program-design collaboratives with Vermont Gas. (1990 –

1991), Citizens Utilities (1990 – 1991), Central Vermont Public Service Corporation (1990) and Green Mountain Power. (1990)

- Comprehensive assessment of Ontario Hydro's 25-year resource plan. Directed work by over a dozen consultants. The study encompassed load forecasting; assessing DM potential and costs; resolving DM-implementation, resource-integration, and institutional issues; assessing all resource costs, including externalities; assessing costs of all supply resources, including non-utility generators; and estimating avoided costs. (1990 – 1992)
- Support to the Pennsylvania Energy Office in its evaluation of Pennsylvania electric utility demand-management plans by preparing testimony and co-authoring a comprehensive, five-volume study of all aspects of demand management. This document surveys issues related to integration of demand-management resources into utility planning, and reconciling least-cost planning objectives with rate-impact constraints; discusses strategies for utility intervention to remove market barriers to energy conservation; evaluates cost-recovery mechanisms for demand-management expenditures by utilities; explores issues related to the screening demand-management measures and programs; and examines direct costs, risk, and externalities avoidable through demand management. (1991 – 1993)
- Provided analysis of 1991 - 1992 New York electric utility DSM plans, and support for the analysis of 1993 - 1994 DSM Plans on behalf of Pace University Center for Environmental and Legal Studies, and Vladeck, Waldman, Elias & Engelhard, P.C., Counsel for the Class of LILCo Ratepayers in County of Suffolk *et al.* v. LILCo *et al.* Proceeding to Inquire into the Benefits to Ratepayers and Utilities from Implementation of Conservation Programs that will reduce Electric Use, New York Public Service Commission Case No. 28223. (1990, 1992, 1994)
- Reviewed Demand Side Management regulations and DSM compliance filings of four New Jersey utilities on behalf of the New Jersey Division of Rate Counsel. Demand Side Management Resource Plan of Jersey Central Power & Light Company. Docket No. EE-92020103. (1992)
- Identified energy-efficiency resources missing from FPL's resource plan that could provide economical substitutes for proposed power supply option. Expert testimony also addressed environmental costs avoided by DSM. Florida PSC Docket No. 920520-EG, In Re: Joint Petition of Florida Power and Light and Cypress Energy Partners, Limited Partnership for Determination of Need. (1992)
- Technical assistance and expert testimony for the Indiana Office of Utility Consumer Counselor, In the matter of the Petition of Indianapolis Power & Light Company for a Certificate of Public Convenience and Necessity for the Construction by it of Facilities for the Generation of Electricity and Submission and Request for Approval of Plan to meet future needs for Electricity. Cause No. 39236. (August 1991 – May 1992)
- Technical assistance and expert testimony for the Indiana Office of Utility Consumer Counselor. In the matter of the Petition of PSI Energy, Inc. Filed Pursuant to the Public Service Commission Act, as Amended, and I.C. 8-1-8.52 for the Issuance of Certificates of

Public Convenience and Necessity to Construct Generating Facilities for the Furnishing of Electric Utility Service to the Public and for the Approval of Expenditures for such Facilities. Cause No. 39175. (June 1991 – February 1992)

- Testimony and surrebuttal for the Delaware PSC Staff. Before the Delaware Public Service Commission Staff, In the Matter of the Application of Delmarva Power & Light Company for Approval of 48 MW Power Purchase Agreement with Star Enterprise, PSC Docket No. 90-16. (January 1991)
- Prepared comments on IRP principles and objectives for the Southern Environmental Law Center. Commonwealth of Virginia State Corporation Commission Order Establishing Commission Investigation to Consider Rules and Policy Regarding Conservation and Load Management Programs, Case No. PUE900070. (1991)

PRIOR ASSIGNMENTS (KOMANOFF ENERGY ASSOCIATES) – 1984-1990

- Advisor to the Vermont Public Service Board. Supported formulating issues, conducting hearings, deciding policy, and drafting opinions and orders on DSM planning programs, and ratemaking. Advised the Board's hearing officer on numerous decisions concerning policy and process, including cost-benefit analysis, design and coverage of utility energy-efficiency programs and integrated planning requirements. Investigation into Least-Cost Investments, Energy Efficiency, Conservation, and Management of Demand for Energy, Docket No. 5270. (1988 – 1990)
- Technical advisor to the Public Utility Law Project of New York. Recommended economic principles for planning utility DSM investment for low-income customers in New York. Proceeding on Motion of the Commission to Determine Whether the Major Gas and Combination Gas and Electric Utilities Subject to the Commission's Jurisdiction Should Establish and Implement a Low-Income Energy Efficiency Program, Case 89-M-124. (1990).
- Technical assistance and advice on behalf of the South Carolina Department of Consumer Affairs on all aspects of Integrated Resource Planning and DSM planning including cost-effectiveness tests for South Carolina PSC investigation into Electric Utility Least-Cost Planning, Docket No. 87-223-E. (1987 – 1992)
- Prepared and defended expert testimony for the Indiana Office of Utility Consumer Counselor on potential for DSM to defer need for new generating capacity. Petition of Southern Indiana Gas and Electric Co. for Approval of Construction and Cost of Additional Electric Generation and for Issuance of a Certificate of Need Therefore, Indiana Utility Regulatory Commission, Cause No. 38738. (September 1989)
- Prepared and defended expert testimony for the Illinois Citizens Utility Board on adequacy of Commonwealth Edison's DSM efforts. Rulemaking Implementing Section 8-402 of the Public Utilities Act, Least-Cost Planning, Illinois ICC Docket No. 89-0034. (July 1989)
- Supported the Vermont Public Service Board with analysis, findings, and conclusions regarding the need for power based on potential DSM resources. Application of Twenty-Four Electric Utilities for a Certificate of Public Good Authorizing Execution and Performance of a Firm Power and Energy Contract with Hydro-Quebec and a Hydro-Quebec Participation Agreement, Docket No. 5330. (1989 – 1990)
- Cost-benefit analysis for the City of Chicago examining alternatives to the renewal of Commonwealth Edison's franchise. (1989)
- Co-author (with J. Wallach) of *The Power Analyst*, integrated spreadsheet-based software for projecting the economic and financial performance of renewable and cogeneration projects, for the New York State Energy Research and Development Authority. Project manager, economic analysis. (1989)
- Advisor for the South Carolina Department of Consumer Affairs. Assessed costs and benefits of long-term power contract. In the Matter of Duke Power Company, Federal Energy

- Commission, Docket No. ER89-106-000. (January 1989 – March 1990)
- Analyzed and provided expert testimony on the economic potential for cost-effective DSM to substitute for capacity and energy from a combined cycle generating plant. Application of Potomac Electric Power Company for Certificate of Public Convenience and Necessity for Station H, Maryland PSC Docket No. 8063 Phase II. (1988)
 - Examined, compared, and recommended appropriate cost-effectiveness tests for the DSM portion of the Massachusetts Department of Public Utilities investigation into the Pricing and Ratemaking Treatment to Be Afforded New Electric Generating Facilities Which Are Not Qualifying Facilities. Docket No. 86-36. (1988)
 - Testimony for the District of Columbia Office of People's Counsel on electric and gas utility least-cost planning. Application of the Potomac Electric Power Company for Changes to Electric Rate Schedules, D.C. PSC Formal Case 834 Phase II. (April and June 1987)
 - Cross-examination for the Connecticut Division of Consumer Counsel to defend KEA's financial assessment of CL&P's ability to withstand Millstone 3 disallowance. Investigation into Excess Generating Capacity of Connecticut Light & Power Company, Connecticut DPUC Docket No. 85-09-12. (April 1986)
 - Cross examination for the Connecticut Division of Consumer Counsel to defend financial and statistical model supporting KEA's findings of CL&P construction imprudence. Retrospective Audit of the Prudence of the Construction of Millstone 3, Connecticut DPUC Docket 83-07-03. (March 1986)
 - Cross-examination for the Pennsylvania Office of Consumer Advocate, defended quantification of imprudence findings by O'Brien/Kreitzberg & Associates regarding PECO's construction management of the Limerick 1 project. Pennsylvania PUC v. Philadelphia Electric Company Docket R-850152. (February 1986)
 - Prepared and defended direct and surrebuttal testimony for the Pennsylvania Office of Consumer Advocate critiquing utility conservation and cogeneration assumptions and presented alternative 20-year electricity sales projection. Pennsylvania PUC Limerick 2 Investigation Docket I-840381. (April 1985)

PRIOR ASSIGNMENTS (INSTITUTE FOR LOCAL SELF-RELIANCE) – 1978-1983

- Technical and economic analysis of small-generator grid interconnection of seven New York electric utilities for the New York Energy Research and Development Authority. Project manager, economic analysis. (1983)
- Written testimony on behalf of the Alaska Public Interest Research Group implementing PURPA 210. Before the Alaska PUC. (1981)
- Written and oral testimony in oversight hearings on state implementation of the Public Utility Regulatory Policy Act of 1978 (PURPA). U.S House of Representatives Subcommittee on Energy Conservation and Power. (1981)

- Written and oral testimony in rulemaking for the Public Utility Regulatory Policy Act of 1978 (PURPA) on behalf of ILSR, before the Federal Energy Regulatory Commission. (1979)

PUBLICATIONS/PRESENTATIONS

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