

John Antonuk

Areas of Specialization

Executive management; management audits and assessments; service quality and reliability management and measurement, utility planning and operations; litigation strategy; management of legal departments; human resources; risk management; regulatory relations; affiliate transactions and relations; subsidiary operations; and testimony development and witness preparation.

Relevant Experience

Natural Gas

Engagement Director for Liberty's management audit of WGL's PROJECT*pipes* for the District of Columbia Public Service Commission.

Engagement Director for Liberty's operational audit of utility staffing levels of each New York electric and gas utility for the New York Public Service Commission.

Engagement Sponsor for Liberty's investigation of Peoples Gas of Chicago's Accelerated Main Replacement Program for the Illinois Commerce Commission.

Project Manager for Liberty's review of Connecticut's program to produce a major expansion of natural gas availability and use by all three of its natural gas utilities for the PURA.

Project Manager for Liberty's examination of safety programs and activities of NiSource's Maine subsidiary Northern Utilities for the Maine Public Service Commission.

Project Manager for Liberty's focused and general management audits of NJR, New Jersey Natural Gas, and affiliates for the New Jersey Board of Public Utilities. This project included detailed examinations of affiliate relationships, governance, financing and utility ring-fencing, compliance with New Jersey EDECA requirements for affiliate separation, protection of confidential information, non-discrimination against third-party competitors with utility affiliates, and other code-of-conduct issues. Personally performed the reviews of governance, EDECA requirements compliance, and legal services.

Project Manager on a major focused audit of Peoples Gas/Integritys that Liberty performed for the Illinois Commerce Commission. Audit topics included natural gas forecasting, portfolio design and implementation, gas purchase and sale transactions, controls, organization and staffing, asset management, off-system sales, storage optimization, and all other issues related to gas supply over a period of eight years.

Project Manager for Liberty's focused and general management audits of SJI, South Jersey Gas, and affiliates for the New Jersey Board of Public Utilities. This project included detailed

examinations of affiliate relationships, governance, financing and utility ring-fencing, compliance with New Jersey EDECA requirements for affiliate separation, protection of confidential information, non-discrimination against third-party competitors with utility affiliates, and other code-of-conduct issues. Personally performed the reviews of governance, EDECA requirements compliance, and legal services.

Project Manager for Liberty's work with staff of the Virginia State Corporation Commission to evaluate the services of an affiliate providing gas portfolio management services under an asset management agreement with Virginia Natural Gas, an operating utility subsidiary of Atlanta-based AGLR.

Project Manager for Liberty's focused audit of NUI Corporation and NUI Utilities. This audit included a detailed examination of the reasons for poor financial performance of non-utility operations, downgrades of utility credit beneath investment grade, and retail and wholesale gas supply and trading operations. Also examined performance of telecommunications, engineering services, customer-information-system, environmental, and international affiliates. The audit included detailed examinations of financial results, sources and uses of funds, accounting systems and controls, credit intertwining, cash commingling, and affiliate transactions, among others. Liberty's examination included very detailed, transaction-level analyses of commodities trading undertaken by a utility affiliate both for its own account and for that of utility operations.

Project Manager for Liberty's comprehensive management audit of United Cities Gas Company for the Tennessee Public Service Commission. Responsible for the focused reviews of affiliate interests, executive management and corporate planning, and vehicle management.

Lead Consultant in Liberty's management audit of Connecticut Natural Gas Company for the Connecticut Department of Public Utility Control (DPUC). Responsible for reviews of organization and executive management and legal management.

Lead Consultant in Liberty's management audit of Southern Connecticut Gas Company for the DPUC. Responsible for organization and executive management, affiliates, and legal management. Included valuation of a major, rate-based LNG facility being offered for sale.

Electricity

Engagement Director for Liberty's management review of Mississippi Power for the Mississippi Public Service Commission.

Engagement Director for Liberty's rate mitigation review of Newfoundland and Labrador Hydro for the Board of Commissioners of Public Utilities.

Engagement Director for Liberty's forensic audit for the Maine Public Utility Commission seeking to identify the root causes of a customer billing complaints following conversion of its customer information system to a new platform.

Engagement Director for Liberty's focused management audit of the Customer Service function of Liberty Utilities New Hampshire. This review included an extensive focus of all elements of

this function, in addition to examinations of Information Technology and Corporate Support Services, Vendor Relationships, Accounting, Business Planning, and Capital and O&M Budgeting. Subsequent to the completion of this audit, Liberty performed follow-up assessments of Customer Service performance and Planning and Budgeting to assess the effectiveness of corrective actions implemented by the Company in response to Liberty's audit recommendations.

Project Manager and witness on audits of fuel (primarily coal and natural gas) procurement and management practices of Nova Scotia Power, a review of the merits and mechanics of a company-proposed automatic recovery method for energy costs, and an audit of affiliate relationships (including coal, electric power, and natural gas procurement activities) performed for the Nova Scotia Utility and Review Board. Liberty has assisted the Nova Scotia Utility and Review Board in other reviews of Nova Scotia Power regarding storm outage and response, in rate cases, and in various other proceedings.

Engagement Director for Liberty's review the prudence of management decisions and actions of Newfoundland and Labrador Hydro concerning Island outages experienced during the winters of 2013 and 2014. This project sought to determine the costs related to these decisions and actions.

Project Manager for Liberty's prudence review of Arizona Public Services' acquisition of Four Corners units 4 and 5 on behalf of the Arizona Commission. That review included an examination of short-and long-term planning issues including environmental risk, fuel economics, transmission system capability, and demand and usage growth. Liberty's review also evaluated the various rate and revenue requirement impacts resulting from the acquisition.

Engagement Director for two Liberty audits for the Mississippi Public Service Commission of Mississippi Power Company's management and operation of fuel and purchased-power procurement. Responsible for reviews of fuel-oil and natural-gas contracting and management, including price-risk management, and the functioning of the Company's Fuel Cost Recovery and Energy Cost Mechanisms.

Engagement Director for Liberty's integrated work with New Hampshire Commission Staff on an analysis of the competitiveness of the Public Service New Hampshire's generating fleet. This work provided a valuation of the power plants, addressing current and expected energy market conditions, the effects of increased cycling of units designed for baseload operations, potential costs associated with compliance with current and potentially increased environmental restrictions, impacts on the competitive market place, and other factors important for the Commission to consider in determining what future role might exist for utility-owned supply resources.

Engagement Director for Liberty's review of electric system infrastructure, supply, and generation at Newfoundland Power and Newfoundland Hydro for the Board of Commissioners of Public Utilities.

Project Director and lead consultant for Executive Management and Governance and Human Resources on Liberty's management and operations audit of Pepco for the District of Columbia Public Service Commission.

Engagement Director for Liberty's review of Entergy Texas's exit from Entergy's multi-state, multi-operating company approach to system planning and operation; and systems planning changes needed to support stand-alone operation by Entergy Texas for the PUCT.

Engagement Director for Liberty's review of Pacific Gas & Electric use of risk assessment to drive electricity safety expenditures; included a review of the basis for identifying required programs, initiatives, and resources for the California Public Utilities Commission.

Project Director and lead consultant for Corporate Planning on Liberty's management and operations audit of Iberdrola SA/Iberdrola USA/NYSEG and RG&E for the New York Public Service Commission.

Project Director and lead consultant for Governance and Senior Management on Liberty's management and operations audit of Interstate Power and Light for the Iowa Utilities Board.

Project Director and lead consultant on Liberty's management and operations audit of the electricity, natural gas, and steam operations of ConEd for the New York Public Service Commission.

Project Director on Liberty's benchmarking analysis of Arizona Public Service for the Arizona Corporation Commission. This study covered a ten-year audit period and benchmarked Arizona Public Service's performance with the following metrics: Operational Performance, Cost Performance, Financial Performance, Affiliate Expenses, and Hedging & Risk Management.

Project Manager for Liberty's comprehensive, detailed affiliate relationships and transactions audit of Duke Energy Carolinas for the North Carolina Utilities Commission staff.

Project Manager for the performance of Liberty's audit for the Delaware Public Service Commission of a diagnostic audit of the affiliate costs borne by Delmarva Power, a member of the multi-state holding company, PHI. This review included an examination of the central services organization structure and operations, the procedures and methods used to allocate and assign costs, and test work to verify that execution of methods and procedures conforms to company procedures and to good utility practice.

Project Manager for Liberty's work for NorthWestern Energy to formulate long-range integrated infrastructure plans for its multi-state electric and natural gas distribution utilities. This project includes consideration of how to incorporate "Smart Grid" technology into infrastructure plans in a manner that will enable the Company to roll out new capabilities and services as technology makes them available, without undue acceleration of capital spending as uncertainties in this new marketplace become resolved.

Project Manager for Liberty's audit of Arizona Electric Power Cooperative for the Arizona State Corporation Commission which included reviews of fuel procurement and management, bulk electricity purchases and sales, power plant management, operations and maintenance, energy clause design and operation, and other issues affecting the prudence, reasonableness, and accuracy of costs that pass through the fuel and energy clause.

Project Manager for Liberty's audit of Southwest Transmission Cooperative for the Arizona Commission, a companion examination of the transmission cooperative that is owned and operated in parallel with Arizona Electric Power Cooperative (a generation cooperative). Among the issues examined in this audit were line losses.

Project Manager for Liberty's audit of East Kentucky Power Cooperative, which included examinations of Governance, Planning, Finance, and Budgeting. Liberty performed for the Kentucky Public Service Commission an examination of governance at a generation and transmission cooperative serving 16 distribution cooperatives across the state. This study came in the wake of significant financial difficulties and also addressed planning, budgeting, financial, and risk functions and activities.

Project Manager for Liberty's audit for the Virginia State Corporation Staff of Potomac Edison Distribution System Transfer. Liberty examined the public interest questions associated with the transfer by an Allegheny Energy's utility operating subsidiary (Potomac Electric) of all of its electricity distribution operations business and facilities in Virginia to two rural electric cooperatives.

Project Manager for Liberty's audit of the fuel and purchased-power procurement practices and costs of Arizona Public Service Company for the Arizona Corporation Commission. Liberty completed audits relating to fuel procurement and management and on rate and regulatory accounting for related costs at Arizona Public Service Company for the Arizona Corporation Commission.

Project Manager for Liberty's audit of Duke Energy Carolinas for the North Carolina Utilities Commission. Scope included compliance with regulatory conditions and code of conduct imposed by the Commission after the merger with Cinergy, and affiliate transactions and cost allocation methods.

Project Manager for Liberty's audit of affiliate transactions of Nova Scotia Power on behalf of the Nova Scotia Utility and Review Board.

Project Manager for Liberty's audit for the New Jersey Board of Public Utilities of the competitive service offerings of the state's four major electric companies. Scope included corporate structure, governance, and separation, service company operations and charges, inter-affiliate cost allocations, arm's-length dealing with respect to a variety of code-of-conduct requirements, and protection of customer and competitor proprietary information.

Project Manager and witness for the staff of the Arizona Corporation Commission addressing the merits of the proposed acquisition of UniSource by a group of private investors.

Project Manager and witness before the Oregon Public Utility Commission addressing the merits of the proposed acquisition of Portland General Electric by a group of private investors.

Engagement Director for Liberty's provision of engineering and technical assistance to the Vermont Public Service Board in connection with review of public necessity and convenience related to the Northwest Reliability Project, which would add a major new 345kV transmission plan to provide an additional source of electricity to serve Vermont's major load growth in its northwest region. The project involved transmission reinforcements at lower voltages and significant substation upgrade work. The proceedings had numerous public, private, and government interveners, who raised issues regarding project need, available electrical alternatives, routing and design, and electromagnetic radiation.

Project Manager for Liberty's support for the New Hampshire Public Utilities Commission in its charge to oversee the divestiture of the Seabrook nuclear plant as part of a major restructuring settlement. The sale produced record high compensation for nuclear facilities in the country.

Project Manager and witness for Liberty's assessment of fuel procurement, affiliate transactions, and automatic adjustment clause implementation for the staff of the Nova Scotia Utility and Review Board in rate case of Nova Scotia Power.

Project Manager for Liberty's engagement on behalf of Boston Edison to examine the company's affiliate relations, including issues of the valuation of assets transferred to an affiliate. Testified in proceedings before the Massachusetts Department of Telecommunications and Energy (formerly the Department of Public Utilities) on several telecommunications issues, including: (a) development of competition, and legislative and regulatory-policy changes supporting it, (b) electric-utility entry into telecommunications markets, (c) costs, prices, and market value of network elements, (d) requirements of the Telecommunications Act of 1996, (e) assessment of compliance with commission orders, company procedures, and service agreements regarding limits on affiliate interactions, (f) inter-company loans, guarantees, and credit support among utilities and their affiliates, (g) accounting for affiliate transactions, (h) obligations to allow nondiscriminatory access to network infrastructure to third parties, and (i) cost pools, overhead factors, and allocation of common costs among utility and non-utility affiliate activities and entities.

Project Manager for Liberty's major consulting engagement for the New Hampshire Public Utilities Commission. Liberty examined management, operations, and costs at Public Service Company of New Hampshire/Northeast Utilities, which is engaged in the operational and cost-accounting separation of its network into segments, for the purposes of restructuring service offerings to allow competition in certain aspects of electric-energy supply. This engagement included an assessment of valuations of nuclear and fossil units, as well as supply contracts with independent-power producers. Liberty also assisted in efforts to settle rate case and restructuring disputes involving, among other issues, stranded costs associated with power plants. The scope of Liberty's work included the development of plans and protocols for power plant (fossil, hydro, and nuclear) and power supply contract assets, as well as the oversight of activities associated with asset auctions.

Engagement Director for Liberty's evaluation of corporate relations and affiliate arrangements of Dominion Resources, Inc. and Virginia Power for the Virginia State Corporation Commission.

This project addressed all significant aspects of corporate governance, operating relationships, and affiliate arrangements between the two entities.

Project Director for all aspects of Liberty's comprehensive management and operations audit of West Penn Power Company for the Pennsylvania Public Utilities Commission. Managed focused reviews of the Company's affiliated costs, power dispatch and bulk power transactions, customer services, finance, and corporate services. Presented testimony before the PAPUC on behalf of the Office of Trial Staff regarding the results of the audit in West Penn's rate case.

Lead Consultant for affiliate relations for Liberty's assignment of providing assistance to Delmarva Power & Light Company in developing and implementing self-assessment and continuous-improvement processes.

Served as advisor to the administrative law judge of the Delaware PSC responsible for hearing cases regarding the implementation of the new law that restructures the electric-utility industry in Delaware.

Engagement Director for nuclear plant performance-improvement projects that Liberty conducted for Duquesne Light Company, Centerior Energy, Nebraska Public Power District, and Pennsylvania Power & Light Company (PP&L).

Engagement Director for a Liberty assignment for Florida Power Corporation, regarding a proposal by the Tampa Electric Company to construct transmission lines to serve the cities of Wauchula and Fort Meade, Florida. Liberty's testimony helped convince the Florida Public Service Commission that Tampa Electric Company's proposed line was uneconomic.

Directed Liberty's engagement to assist a regional electric generation and transmission cooperative, whose members' combined operations make it a major competitor in the state's electricity business, to conduct its first-ever comprehensive and formal strategic-planning process.

Other Companies

Set up and managed service and facilities section of the PP&L Regulatory Affairs Department. Counseled utility management on regulatory and legislative matters. Litigated rate related and facility construction proceedings before agencies and the courts.

Attorney for the PA PUC. Assigned as counsel to the Commission's Audit Bureau in developing a comprehensive management-audit system. Negotiated contracts for the first commission-ordered management audits in Pennsylvania. Revised Commission organization and practice to conform to regulatory-reform legislation.

Education

J.D., with academic honors, Dickinson School of Law
B.A., cum laude, Dickinson College

John Adger

Areas of Specialization

U.S. and Canadian gas industry regulation, and management studies for public utility commissions. Also, strategic analysis and business planning for the natural gas industry; natural gas supply and procurement strategy; natural gas marketing strategy.

Relevant Experience

U.S. and Canadian Gas Industry Regulation

Served as a member of Liberty teams supervising power-supply auctions for standard offer service to customers of Baltimore Gas & Electric Company, Potomac Electric Power Company and Delmarva Power Company.

Assisted the Staff of the Nova Scotia Utility and Review Board in the Board's consideration of revisions to the fuel adjustment (rate) mechanism for Nova Scotia Power Inc. Revisions included updates to the Plan of Administration, definition of costs eligible for recovery through the mechanism, and refinement of the mechanisms for collecting unrecovered balances. Previously assisted the Staff in considering adoption of the mechanism. Assistance included examination of Company proposals, comparison with similar mechanisms in other jurisdictions, and recommendations for changes as appropriate.

For a multi-client group that included the company and its stakeholders, served as a member of a Liberty team that analyzed the costs and benefits of a series of utility and non-utility investments in natural gas storage by Northwest Natural Gas Company. The team also evaluated the sharing arrangements for proceeds from asset-management agreements involving the storage facilities plus the company's upstream assets, comparing them to similar arrangements in other parts of the U. S. and Canada.

Served as a member of a Liberty team evaluating for the Counsel to the Nova Scotia Utility and Review Board a rate increase proposal by Nova Scotia Power, Inc. covering 2017 through 2019. Responsibilities included fuel oil and natural gas costs, and purchased-power expenses. Previously evaluated the same company's fuel-oil and natural-gas supply activities for the Board Counsel, presenting testimony in the Company's 2005, 2006, 2007, 2009, 2012, and 2013-2014 rate cases. After the 2005 rate case, assisted the Board in monitoring Company implementation of Liberty recommendations for improvements in fuel-supply management practices.

Served as a member of a Liberty team assisting the Staff of the Texas Public Utility Commission in its examination of Entergy Texas' exit from the Entergy System Agreement. Assisted evaluation of responsibility for a natural gas storage facility.

Served as a member of a Liberty team assisting the Staff of the Arizona Corporation Commission in its evaluation of Arizona Public Service Company's proposal to purchase Units 4 and 5 at the Four Corners Power Generating Station. Responsible for evaluating APS's assumptions about future natural gas prices.

Led a Liberty team assisting the Staff of Connecticut's Public Utility Regulatory Authority in evaluating a Natural Gas Infrastructure Expansion Plan. The Plan, developed as part of Connecticut's 2013 Comprehensive Energy Strategy, envisioned increasing the number of gas customers in the State by almost 50 percent over a 10-year period, while maintaining progress on the State's cast-iron main replacement program, and on other distribution-system safety-enhancement programs.

Served as a member of a Liberty team that assisted the Staff of the Nova Scotia Utility and Review Board in its evaluation of a proposal by an affiliate of Nova Scotia Power to install a high-voltage undersea cable to connect Nova Scotia to Newfoundland. The proposal was part of a much larger project involving hydroelectric generation in Labrador, plus high-voltage transmission from Labrador to Newfoundland, and Newfoundland to Nova Scotia. Responsible for evaluation of fuel-price assumptions used in comparative analysis.

Assisted the Staff of the District of Columbia Public Service Commission in monitoring the progress of a distribution-pipe repair program to address persistent leaks. Assistance included evaluation of project definition, examining the use of leak data in project prioritization, and evaluation of program progress.

Served as a member of a Liberty team that assisted the Staff of the New Hampshire Public Service Commission in evaluating the economic viability of Public Service Company of New Hampshire's fossil-fired generation.

Served as a member of a Liberty team that assisted the Staff of the Nova Scotia Utility and Review Board in its evaluation of a proposed biomass-fueled cogeneration project. Responsible for review of the operating agreement with the host facility.

Assisted the Staff of the District of Columbia Public Service Commission in its review of proposals to deal with the introduction of re-vaporized liquefied natural gas into Washington Gas Light Company's gas distribution system. Assistance included preparing advisory memoranda for the commissioners, briefing the Commission on issues, attending hearings, preparing detailed recommendations for issue resolution, and for monitoring WGL's system-repair program.

Assisted the Staff of the New Hampshire Public Utilities Commission in its consideration of peak-period gas-supply alternatives for EnergyNorth Natural Gas, Inc. Reviewed filed materials, independently analyzed key alternatives, and presented expert testimony to the Commission regarding Liberty's findings.

Served for several years as an extension of the Staff of the Connecticut Department of Public Utility Control. Projects included

- Five general rate cases for the gas distribution companies operating in the State

- Two facilities-certification proceedings, including evaluation of a proposed liquefied natural gas production and storage facility
- Consideration of incentive rate plans for all three gas distribution companies, and a special system-extension rate mechanism for one of them
- Consideration of purchased-gas adjustment filings for all three gas distribution companies
- Consideration of proposed asset-management agreements for two of the companies, including renewals of those agreements
- Consideration of a third-party audit of the affiliate relationships of one of the gas distribution companies
- Consideration of Consolidated Edison Company's proposed acquisition of Northeast Utilities.

For a regional marketer of gas and electricity, directed an analysis of the role of the purchased-gas-cost adjustment mechanism in forming retail prices for natural gas in Ohio.

Presented expert witness testimony on FERC rate-design policy to a pipeline-rates proceeding before the Texas Railroad Commission.

For the staff of a regulatory commission in the northeast U.S., evaluated a gas-service and capacity-release project that was proposed by a jurisdictional utility.

Directed Liberty's analysis for the Georgia Public Service Commission of the impacts of FERC's Order 636 on gas rate structures in Georgia.

Management Studies for Public Utility Commissions

Currently serving as Lead Consultant for a comprehensive examination of the natural gas supply procurement and management practices of Northern Utilities, Inc.'s Maine Division for the Maine Public Utilities Commission.

Served as a member of a Liberty team conducting a review of Washington Gas Light Company's ProjectPIPES gas main replacement project for the District of Columbia Public Service Commission. Primary responsibilities were assessing Program progress to date, and liaison with associated financial audit.

Served as a member of a Liberty team conducting a two-year review of The Peoples Gas Light & Coke Company's Accelerated Main Replacement Program for the Illinois Commerce Commission. The first year examined PGL's planning and implementation of the Program to date, and the second was intended to implement recommendations for improvement. Primary Adger responsibilities in Year One, assessing Program progress to that point.

Served as Lead Consultant in three Liberty audits for the Mississippi Public Service Commission of Mississippi Power Company's management and operation of fuel and purchased-power procurement. Responsible for reviews of fuel-oil and natural-gas contracting and management,

including price-risk management, and the functioning of the Company's Fuel Cost Recovery and Energy Cost Mechanisms.

Served as Lead Consultant in Liberty's fourth audit for the Nova Scotia Utility and Review Board of Nova Scotia Power Inc.'s management and operation of fuel and purchased-power procurement. Responsible for reviews of load forecasting and fuel-supply planning, and gas-supply planning, contracting and management. Performed similar roles in the first three audits. All four audits resulted in testimony to the Board in support of Liberty's findings, and work with Company and Board Staff to develop Action Plans for implementation of audit recommendations.

Served as Lead Consultant in two audits of the prudence of Arizona Electric Power Cooperative, Inc.'s fuel and purchased-power policies, activities and costs, and one such audit of Arizona Public Service Company, for the Arizona Corporation Commission. Responsible for reviews of fuel-oil and natural-gas purchasing, and fuel and purchased-power hedging.

Served as a Consultant in a management audit of Interstate Power and Light Company for the Iowa Utilities Board. Responsible for reviewing gas-supply activities, including price-risk management.

Served as Lead Consultant in two audits of the procurement practices for fuel and purchased power of Entergy Mississippi, Inc. for the Mississippi Public Service Commission. Responsible for reviews of fuel-oil and natural-gas purchasing and management, including price-risk management, and of power purchases and sales. Appeared before the Commission in support of Liberty's findings.

Served as Lead Consultant in a prudence review of the fuel and purchased-power activities of Southwestern Public Service Company for the New Mexico Public Regulation Commission. Responsible for reviews of fuel-oil and natural-gas contracting and management; price-risk management; and contracting for renewable energy.

Served as Lead Consultant in a management audit of Elizabethtown Gas Company, and in an earlier focused audit of affiliate transactions, both for the New Jersey Board of Public Utilities. Responsible for reviews of gas procurement, system operations and maintenance, manufactured gas plant remediation, and affiliate transactions.

Served as Lead Consultant in a general management and operations audit of the electric, gas and steam operations of Consolidated Edison Company of New York, Inc. for the New York Public Service Commission. Responsible for reviews of gas demand forecasting, gas procurement and supply management, and gas distribution system planning.

Served as a Team Leader for a focused management audit of the gas-supply procurement and supply-management practices of The Peoples Gas Light and Coke Company and North Shore Gas Company for the Illinois Commerce Commission. Responsible for reviews of affiliate relationships; load forecasting and gas-supply planning; procurement, sales and portfolio optimization; and storage and hub operations.

Served as Leader of the Gas Procurement Analysis Team in focused audits of affiliate transactions and general management audits of New Jersey Natural Gas Company and South Jersey Gas Company for the New Jersey Board of Public Utilities. Responsible for all reviews in the focused audits, and for the review of system operations in the general management audits.

Served as Lead Consultant in an audit of the affiliate relationships and transactions of Nova Scotia Power, Inc. for the Nova Scotia Utility and Review Board. Responsible for reviews of oil, gas and electric-power relationships and transactions with affiliates.

For the State Corporation Commission of Virginia, served as a Consultant for an assessment of Virginia Natural Gas Company's asset-management agreement with its affiliate, Sequent Energy Management Company. Responsible for reviews of Sequent/VNG/AGLS roles and responsibilities in gas-supply operations, and for transaction analysis.

Served as Project Manager for a review of the supply planning and asset-management agreements of EnergyNorth Natural Gas, Inc. for the New Hampshire Public Utilities Commission. Presented testimony to the Commission in the Company's Winter 2004/2005 Cost of Gas proceeding, and in a special proceeding convened to consider the results of the review.

Served as Consultant to an operations audit of the electric and gas transmission and distribution systems of NorthWestern Energy Company – Montana Division. Responsible for reviews of gas-system load forecasting and system design.

Lead Consultant in Liberty's management audit of the gas-purchasing function at the five largest gas distribution companies in Kentucky (Columbia Gas of Kentucky, Delta Natural Gas Company, Louisville Gas & Electric Company, Union Light, Heat and Power Company, and Western Kentucky Gas Company) for the Kentucky Public Service Commission. Responsible for reviews in gas-supply planning, supply management, gas transportation services and system balancing.

Lead Consultant in Liberty's examination of cost allocation issues at Arkansas Western Gas Company for the Arkansas Public Service Commission. Responsible for the review of staffing levels.

Lead Consultant in Liberty's management audits of The Southern Connecticut Gas Company, Connecticut Natural Gas Corporation and Yankee Gas Services Company, for the Connecticut Department of Public Utility Control (now Connecticut's Public Utility Regulatory Authority). Responsible for reviews of gas supply and marketing activities, and manufactured gas plant remediation activities.

Managed Liberty's audit of the gas-purchasing and supply-management policies and practices of K N Energy, Inc. for the Wyoming Public Service Commission. Responsible for the reviews of gas acquisition, gas transportation and storage, relationships with affiliates, and response to regulatory change. Conducted supplemental evaluations in response to Liberty's initial findings, and presented testimony to the Commission in the proceeding to consider K N's pilot program for unbundling its services in Wyoming.

Consultant in Liberty's management audit of the Tennessee operations of United Cities Gas Company for the Tennessee Public Service Commission (now the Tennessee Regulatory Authority). Responsible for reviews in system operations, marketing, and affiliate relationships.

Lead Consultant in Liberty's audit of gas-purchasing policies and practices at Pike Natural Gas Company and Eastern Natural Gas Company for the Public Utilities Commission of Ohio. Responsible for the reviews of gas acquisition, gas transportation services, and response to regulatory change.

Consultant in Liberty's audit of the affiliate relationships of Public Service Enterprise Group (holding company for Public Service Electric & Gas Company) for the New Jersey Board of Regulatory Commissioners. Responsible for reviews of systems and processes, affiliate relationships, and transaction analysis with regard to (a) the purchase of gas from the Group's gas-producing subsidiary, (b) the purchase of electric power from the Group's IPP subsidiary, and c) the Group's real estate subsidiary.

Led the evaluation of gas-supply activities as part of Liberty's management audit of New York State Electric & Gas Corporation for the New York Public Service Commission.

Other Experience

Strategic Analysis and Business Planning

Served as a member of a Liberty team assisting the Staff of the Nova Scotia Utility and Review Board in its participation in development of Nova Scotia Power, Inc.'s 2014 Integrated Resource Plan. Assistance primarily in the areas of fuel price assumptions and sensitivity analysis. Previously assisted Board Staff in the 2009 Update of a comprehensive IRP prepared in 2007.

Served as a member of a Liberty team that conducted an extensive review of operating-cost structure and cost allocation for National Grid USA. Supported reviews in business unit structure and interactions, and in service-cost management.

For an offshore supplier of liquefied natural gas, advised on strategic and market factors affecting alternative locations for entering the U. S. gas market.

Consultant on a merger-benefits study performed for an electric distribution cooperative and a local farmers' cooperative.

Lead consultant on a business-enhancement project for a Rocky-Mountain-area electric cooperative. Responsible for diversification-planning task.

For an investment banking group, identified themes for enhancing the value of gas distribution and transmission/storage business segments through acquisitions, and used those themes to develop criteria for acquisitions.

Co-directed a project to develop a comprehensive unbundling strategy for a gas distributor with operations in 12 states.

Directed a project to assist an electric utility in exploring opportunities in related businesses. Options considered included gas pipeline and storage projects; distribution of other fuels including natural gas, propane and heating oil; and ventures in telecommunications.

For a combination electric and gas utility company in the Midwest U.S., participated in a major re-evaluation of its strategy for its gas business unit.

For a major Canadian pipeline company, prepared an analysis of strategic factors in U.S. pipeline industry mergers. Subsequently presented findings of the study to the company's Corporate Strategy and Policy Committee.

Natural Gas Supply Strategy

For two municipal electric power systems, directed an evaluation of capacity availability on a pipeline-system segment serving a large number of gas-fired electricity-generating facilities. The results of that evaluation were used to develop alternative approaches to gas-supply contracting for a generating facility owned by the cities.

For Kansas Pipeline Operating Company, evaluated certain gas supply contracts entered into by Western Resources' KPL Gas Service Company, and Southern Union's Missouri Gas Energy. Presented testimony to the Kansas Corporation Commission, and to the Missouri Public Service Commission.

Performed gas supply evaluations as part of a general work process improvement study for a power-supply cooperative in the southeast U. S.

For a steam utility in Pennsylvania, solicited offers for gas supply, and helped evaluate the responses.

For the Potomac Electric Power Company, assisted in the development of comprehensive policies and procedures for fuels procurement. Responsible for gas acquisition policies and procedures.

Directed development of a gas supply strategy for a power-supply cooperative's first combustion turbines. (Coop's generation previously all coal-fired.)

For Delmarva Power & Light Company, assisted an internal review of gas supply planning for electric power generation.

Natural Gas Marketing Strategy

Assisted a production-area storage developer in identifying prospective users of a proposed gas storage facility, and in marketing interests in the project.

For National Fuel Gas Supply Corporation, analyzed potential markets for gas storage and pipeline capacity in particular sectors and particular geographic areas. Also recommended opportunities in electric utility industry restructuring for consideration by NFGS management.

Prior Experience

1983-1987: ICF, Incorporated: consulting projects for firms in all segments of the oil and gas industries in the U. S. and Canada

1974-1982: U. S. Government: policy analysis for and regulation of all segments of the oil and gas industries in the U. S. and Canada

1969-1973: Mobil Oil Corporation: oil and gas exploration activities in Libya and Indonesia

Education

1962-1968: The Massachusetts Institute of Technology: M.S., Geology and Geophysics; B.S., Earth Sciences and Chemical Physics (double major)