

ELLEN G. COOL

SUMMARY

A consultant with 30 years of experience advising electric and gas companies, state regulatory authorities, and large energy end users. Principal expertise includes management of wholesale power and fuel procurement and contracting, project financial management, environmental compliance, project siting and permitting, regulatory policy and analysis, and working group facilitation.

PROFESSIONAL EXPERIENCE

- 1999 - **Levitan & Associates, Inc.**
Vice President & Principal
Managing Consultant
Executive Consultant
Senior Consultant
- 1990 - 1999 **Harding Lawson Associates / ABB Environmental Services, Inc.**
Principal and Northeast Area Manager
Senior Program Manager
- 1988 - 1990 **TRC Consultants**
Project Manager
- 1986 - 1988 **Woodward Clyde Consultants, Inc.**
Project Manager
- 1985 - 1986 **Converse Environmental East**
Project Hydrogeologist
- 1982 **Chevron Resources Company**
Geologist
- 1979 - 1980 **U.S. Environmental Protection Agency**
Staff Scientist

CONSULTING ASSIGNMENTS

Advisor to CT DEEP and to RI DPUC on the Clean Energy RFP, a regional procurement undertaken by CT, MA, and RI to procure long term contracts for new renewable resources, transmission, and large-scale hydropower resources.

Advisor to the Rhode Island Office of Energy Resources (OER) regarding the greenhouse gas impacts ascribable to the operation of a proposed 1,000 MW combined

cycle plant. Participated in a public workshop, and supported the preparation of OER's Advisory Opinion to the Energy Facilities Siting Board.

As a subcontractor to the Kaye Scholer law firm, engaged by the Maryland Public Service Commission to assist in the development of regulations implementing the Maryland Offshore Wind Energy Act of 2013. Prepared qualitative and financial criteria for the screening and selection of offshore wind projects, consistent with statute and state policy objectives.

Managed LAI's support to the Connecticut Department of Energy and Environment (CT DEEP) in two rounds of procurements for new Class 1 and other clean, renewable energy resources under long term contracts. Developed qualitative and quantitative evaluation criteria consistent with authorizing legislation. Analyzed of bid prices and market value of products and ranked proposals based on established criteria.

On behalf of the Connecticut Public Utilities Regulatory Authority (formerly Department of Public Utility Control), provide technical support for quarterly wholesale procurements by the state's two investor-owned utilities, including full requirements for default service. Support design of auction, development of wholesale purchase agreements, portfolio design, calculation of benchmark prices, and establishment of credit and collateral requirements. Provided testimony before the Commission regarding procurement integrity and compliance of the procurement with PURA procedures and statutory criteria.

On behalf of the Connecticut Public Utilities Regulatory Authority, facilitated a Working Group charged with developing a Procurement Plan for Standard Service to serve residential and small C&I customers who rely on the distribution company for electric supplies.

Managed LAI's participation as extension of Staff and as the Prosecutorial Unit for the Connecticut Public Utilities Regulatory Authority's procurement of new in-state peaking generation. Identified the quantity and operating performance criteria to provide requisite ancillary services for the load zone. Supported a collaborative effort to develop the RFP, proposal selection criteria, model terms and conditions, and pricing algorithm for a long-term Contract for Differences (CfD). Conducted bidder due diligence and quantitatively evaluated net benefits to ratepayers of competing proposals over a 30-year contract term. Provided written and verbal testimony before the Commission regarding our recommended projects for selection during the contested phase of the proceeding. Resulted in the development of 520 MW of peaking generation under long-term CfDs with the utilities.

Participated in scenario analysis and evaluated permit requirements for dual fuel operation as part of LAI's assignment on behalf of the Eastern Interconnection Planning Collaborative, a comprehensive study of pipeline and storage adequacy affecting bulk power security.

On behalf of the Connecticut Public Utilities Regulatory Authority, participated in settlement discussions and provided technical support regarding modifications to the CfDs for peaking generation necessitated by ISO New England market rule changes.

On behalf of the Connecticut Public Utilities Regulatory Authority, provided oversight and technical assistance in the utilities' solicitation of long term contracts for energy, capacity and RECs. Developed methods for evaluation of bids from wind farms and wood biomass plants. Provided written and oral testimony before the Commission regarding the hedge benefits of long term contracts within the utilities' portfolios, as well as other procurement options.

Advised the Connecticut Office of Consumer Counsel in the merger proceedings involving Northeast Utilities and NStar.

On behalf of the Connecticut Office of Consumer Counsel, reviewed the Integrated Resource Plans filed by the state's two investor-owned utilities and by the Connecticut Energy Advisory Board. Provided written and oral testimony before the Connecticut Commission regarding the policy and planning recommendations over a 10-year horizon.

Assisted the New Jersey Board of Public Utilities and the Governor's Office prepare the state's Energy Management Plan. The Plan broadly considered the buildout of backbone transmission projects, in-state supply and demand-side resources, including the prospective retirement of Oyster Creek nuclear facility, the environmental and job-creation benefits of the state's RPS including the solar carve-out, and expansion of the state's natural gas infrastructure.

Assisted the Long Island Power Authority with multiple competitive solicitations for new generation and HVDC transmission to serve the Island. Performed due diligence on respondents, coordinated LAI's financial analysis of rival bids, evaluated the feasibility of fuel delivery alternatives and the permitability of cable projects and gas interconnections.

On behalf of the New Jersey Board of Public Utilities, designed and implemented a solicitation to procure up to 2,000 MW of new combined cycle capacity under the Long Term Capacity Agreement Pilot Program. Evaluated permit and other development risks. Quantified net environmental benefits due to displacement of less efficient fossil generation across the region. Testified before the BPU regarding the outcome of the procurement and net environmental benefits to New Jersey.

On behalf of an investor-owned utility in the Northeast, prepared a strategic evaluation of options for its fossil generation fleet. Prepared ranges of capital and operating costs associated with probable new environmental requirements under a range of future scenarios.

On behalf of Allegheny Power, served as Independent Procurement Monitor during the solicitation of full requirements wholesale power supplies for eligible customers in Virginia. Reviewed procurement documents and protocols, monitored procurement

integrity through the evaluation and award of bids, and prepared a procurement report for filing with the Virginia State Corporation Commission.

On behalf of the four Massachusetts investor owned utilities, prepared long term forecasts of energy, capacity, and REC prices to be used as benchmarks in the utilities' solicitation of renewable energy under long-term contracts as required by the Green Communities Act of 2008. Advised the utilities regarding potential energy market price suppression impacts of long-term renewable contracts.

Conducted due diligence on a portfolio of wind projects located in New England and New York on behalf of an investment bank. Evaluated energy production and deliverability issues affecting project revenues.

On behalf of NSTAR, prepared filings to the Massachusetts Energy Facilities Siting Board for a proposed 345-kV transmission line. Evaluated the need and quantified the economic benefits of the proposed project versus project alternatives, including generation and demand response. Assisted counsel with discovery and provided written and oral testimony before the Board.

On behalf of the Rhode Island Economic Development Corporation, developed a database of off-shore wind PPA prices, net metering tariff rates, and feed-in tariffs across the U.S. and Europe in connection with the economic evaluation of the Deepwater Block Island offshore wind project.

On behalf of PowerOptions, advised the non-profit corporation regarding the development of a program to install solar photovoltaic facilities on member institutions' sites across Massachusetts under PPA arrangements.

On behalf of the Maryland Public Service Commission, evaluated alternative strategies for meeting the state's growing power demands and meet its Renewable Portfolio Standards through contracting alternatives, new generation, transmission expansion, and demand-side options. Prepared long-term forecasts for the cost of environmental compliance, including greenhouse gas controls and RECs.

On behalf of a large New England water utility, managed a competitive procurement for retail power supplies for all of its pumping, reservoir, and office facilities. Projected the savings offered by competitive retail supplier relative to the electric utility's standard offer service. Worked with counsel to negotiate contract terms and conditions.

Assisted a developer prepare filings to the Massachusetts Energy Facilities Siting Board for a proposed peaking generation project. Evaluated net impact on regional air emissions ascribable to the project and the need for new quick-start resources in northeastern Massachusetts to provide locational forward reserves. Evaluated alternative fueling strategies and fuel assurance for the project.

On behalf of the Long Island Power Authority, prepared an independent analysis of the environmental impacts and benefits of the Broadwater floating storage and regasification unit proposed for the middle of Long Island Sound.

Assisted Cornell University develop its Energy Master Plan. Evaluated the risk-adjusted economic value-added of technology alternatives for expanding the steaming capacity of the university's central heating plant, and assessed the environmental benefit of each alternative in terms of net emissions.

Prepared an expert report regarding valuation of a high-deliverability gas storage project. Advised client on opportunities for enhanced trading, marketing and contract administration.

Facilitated collaborative meetings among diverse stakeholders chartered by Connecticut Public Act 02-95. Provided a comprehensive plan and environmental policy recommendations to the State Legislature regarding submarine cables and gas pipelines across Long Island Sound and aboveground and underground transmission lines in Southwest Connecticut.

On behalf of ISO New England, analyzed fuel diversity, reliability issues, and compliance costs arising from environmental and other regulatory initiatives.

Assisted New York University with a competitive solicitation to select an on-site cogeneration project developer. Advised client on alternative project delivery structures.

Researched biomass fuel supply economics for a proposed cogeneration project to be fueled by a combination of waste wood and woody crop.

Evaluated environmental permit conditions and regulatory requirements that restrict or limit backup fuel oil use for new and existing gas-fired generation, as part of a reliability study of the natural gas infrastructure in ISO New England.

Evaluated revenue and earnings forecasts for two energy services companies as part of a due diligence assessment for the acquisition of non-regulated affiliates of a northeast utility company.

Advised a recycled paper manufacturer on electricity procurement and production alternatives, technologies for utilizing the mill's rejects stream, natural gas transportation alternatives, and permitability of proposed on-site energy projects. Managed a competitive procurement to construct on-site generation. Evaluated requirements with respect to New York State's SEQRA process, air permit modifications, Article VII, wetlands regulations, and SPDES.

Evaluated alternative energy production strategies and related environmental permitting constraints for the State University of New York campuses as part of a university system-wide review of energy procurement opportunities in New York's competitive energy market.

Analyzed non-utility generator contract reformation initiatives for Potomac Electric Power Co.

Evaluated environmental constraints associated with the feasibility of inside-the-fence cogeneration for Phelps Dodge at a primary rod mill production plant, including NEPA requirements for gas pipeline construction.

Provided litigation support, including project viability assessment, following termination of a Purchase and Sale Agreement for the acquisition of a nuclear power plant.

Analyzed effluent and flow data for three of NYSEG's coal-fired power plants in New York for compliance with the facilities' SPDES water discharge permit requirements.

Assessed risk profile and contract alternatives associated with construction of a natural gas lateral to a proposed cogen plant for National Institutes of Health.

Advised Massachusetts Water Resources Authority on reliability requirements for back-up generator systems under the EPA NPDES program.

Evaluated incremental costs of the Holyoke Hydroelectric Project resulting from conditions imposed by the Massachusetts DEP Water Quality Certification.

Developed engineering approaches and designs to comply with environmental regulations pertaining to former manufactured gas plant sites in Massachusetts, Maine, New Hampshire, and New Jersey for Bay State Gas Company, NEES, and PSE&G.

Quantified potential environmental liabilities in numerous due diligence reviews for acquisitions and divestitures of energy, railroad, and manufacturing company assets, both in the U.S. and Europe.

Evaluated and optimized engineering design of product recovery system for environmental compliance at Mobil and Coastal refineries in New Jersey.

Provided expert witness testimony for a pump manufacturer's defense against the local water department's groundwater contamination damage claim.

Evaluated risk/reward profile for site restoration and redevelopment options of a 40-acre parcel in Providence, R.I.

EDUCATION

Harvard University, Cambridge, MA
A.B., Geological Sciences

University of Washington, Seattle, WA
M.S., Ph.D., Geological Sciences

PRESENTATIONS & PUBLICATIONS

2012. “Influence of State Policymaking on New England’s Wholesale Markets – RGGI” Northeast Energy and Commerce Association, 11th Annual Power Markets Conference, Westborough, MA, October 24, 2012.
2009. “How to Shop for Power.” MassBusiness, p. 16 (with M.J. DeCoursey).
2000. “Backup Power Risk Factors Impacting the Commercial Merit of Combined Heat and Power”: Proceedings, 91st Annual Conference of the International District Energy Association, Montreal, Quebec, June 10-13, pp. 169-182.
1998. “Innovative and Cost-Effective Dual Phase Extraction using a Vacuum Truck and Standard Monitoring Wells”: Amherst Soils Conference, October (with D.M. McCabe, R.K. Maggiani, F. W. Lilley).
1994. “The 1,000-Mile-Long Site: Managing and Evaluating Environmental Liabilities for the Railroad Industry.” Presented at the New England Environmental Expo, Boston, MA, April (with K.A. Nelson).
1993. “Integrated Risk Management: A Tool for Strategic Decision-Making.” Presented at Air & Hazardous Waste Management Conference. Hartford, CT, October 20 (with M.J. Murphy).
1992. “Reduce Sampling Errors: Careful Extraction Method Can Improve Accuracy of Soil Analyses” *Soils*; January-February; pp. 16-18.
1990. “The Interpretation of Free-Phase Floating Toluene Contamination at a Hydrologically Complex Site”; New England Environmental Expo, Proceedings (with McCabe, D.M.).
1989. “Vein Formation, Fluid Flow, and Wall Rock Geochemistry at the Lucky Friday Mine, Coeur d'Alene Mining District, Idaho”; 28th International Geological Congress, Washington, D.C. Proceedings; Vol. 1; pp. 1-323 - 1-324.
1985. (Gitlin, E.C.). “Sulfide Remobilization During Low Temperature Alteration of Seafloor Basalts”, *Geochimica et Cosmochimica Acta*, 49; pp. 1567-1580.
1985. (Gitlin, E.C.). “Alteration and Fluid Flow Around a Sulfide-Carbonate-Quartz Vein, Lucky Friday Mine, Northern Idaho”; Geological Society of America, Abstracts with Program 17; pp. 593.
1985. (Gitlin, E.C.). “Small-Scale Heterogeneities in Stillwater Anorthosite II”. Lunar and Planetary Science XVI; Lunar and Planetary Institute; Houston, Texas (with P.A. Salpas, I.S. McCallum, and L.A. Haskin).
- Trainer, ABB Project Risk Workshop, July 1994

ASSOCIATIONS

Northeast Energy and Commerce Association, Inc., Board Member and Vice President,
Policy

ISO New England Environmental Advisory Group