

1 **SUBJECT: Experience and Qualifications**

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3 **QUESTION:**

4 Please file the curriculum vitae for each member of your firm or third party identified in
5 MH/LCA 1 a). Please specify those individuals who intend to appear to give evidence during
6 the oral portion of the proceeding.

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8 **RESPONSE:**

9 See the attached curriculum vitae. Daniel Peaco, John Athas and Mary Neal are scheduled to
10 appear as a panel to give oral evidence.



John G. Athas

Principal Consultant and Treasurer

John Athas joined La Capra Associates in 2006, bringing nearly 30 years of diverse electric industry experience. He has substantial, hands-on skills having worked for an electric utility, a competitive retail electric services provider, a power technology manufacturer, and an energy industry consulting firm. Through extensive practical application, he has assumed leadership roles in market pricing and policy, resource planning, analysis of competitive wholesale and retail markets, financial and risk analysis, strategic planning, and contracts and transactions. With expertise in utility regulation, energy marketing and product development, energy policy, asset valuation, mergers and acquisitions, and corporate strategy, Mr. Athas has provided clients valuable insight from his unique blend of experience in strategy consulting, technical evaluations and energy market participation.

Mr. Athas holds an M.B.A. from the University of Connecticut, an M.S. in Mechanical Engineering from Rensselaer Polytechnic Institute, and a B.E. from Cooper Union.

PROFESSIONAL EXPERIENCE

Economic Development

- Developed special incentive packages of utility rate discounts and comprehensive energy efficiency investments for large customers in Business Retention and Economic Development circumstances. These packages were coordinated with and integrated into broad incentive packages developed by state and local economic development agencies.
- Provided expert testimony before the Nova Scotia Public Service Board regarding the appropriateness of special load retention tariffs for Nova Scotia Power Incorporated
- Managed NU's economic development and special contracting flexible rate tariffs in Connecticut and Massachusetts.
- Negotiated special contracts with NU's large customers in Massachusetts, Connecticut and New Hampshire.

Rates and Regulation

- Provided expert review and critique for Public Service Organization of Oklahoma's request for proposal for baseload generation in support of the Office of the Attorney General.
- Provided review and comment on the Philadelphia Electric Smart Metering Implementation Plan for the Pennsylvania Office of Consumer Advocate
- Drafted changes to proposed demand-side rules in Oklahoma for the Oklahoma Industrial Energy Consumers.
- Managed rates and cost-of-service functions for Northeast Utilities (NU).

Integrated Resource Planning

- Collaborating to review and critique the Connecticut utilities' 2010 IRP on behalf of the Connecticut Energy Advisory Board (CEAB), including extending analysis and modeling to 2030.

- Managing consultant leading IRP planning and related regulatory filings for various New England electric utilities and cooperatives, including Green Mountain Power, Washington Electric Cooperative (VT), Vermont Electric Cooperative, and Vermont Marble Power.
- Provided a critique of Public Service of Oklahoma's IRP and Oklahoma Gas & Electric Company's IRP, in response to their joint application to build a base load coal fired generating capacity, on behalf of the Oklahoma Attorney General's Office.
- Managed NU's resource planning function from the inception of Integrated Demand/Supply Planning (now IRP) through 1991.

Market Analysis

- Project manager and principal lead on analysis for Vermont Combined Heat and Power and Distributed Generation Potential Study in 2010 on behalf of Vermont's System Planning Committee.
- Provide principal leadership to the team responsible for the La Capra Associates' Electric Market Model, which is used to support the analysis for numerous client projects.
- Conducted scenario planning studies for all North America regional power markets (U.S. and Canada). Provided capacity requirements, resource adequacy assessment, and energy price outlooks.
- Conducted scenario planning studies for all North America regional power markets (U.S. and Canada). Provided capacity requirements, resource adequacy assessment, and energy price outlooks.
- Charged with the role of principal for power research and consulting for the Eastern Energy Service, providing insight into the interactions of electric and gas markets within the Eastern Interconnect.
- Led marketing, structuring and product development for Select Energy's retail energy commodity and energy services business.
- Directed market research regarding customer choice and customer satisfaction.
- Supervised market modeling activities for North America (U.S. and Canada) for Cambridge Energy Research Associates (CERA).
- Analyzed power prices and their impacts on clients in the evolving market structures for ISO New England (ISO-NE), New York Independent System Operator (NYISO) and the PJM Interconnection (PJM).
- Supported the development and marketing, while negotiating a power and energy services package to, major retail aggregations and affinity for Select Energy. This includes the largest Municipal Aggregation the Cape Light Compact for communities on Cape Cod and Martha's Vineyard.

Stakeholder Facilitation and Process

- Facilitated information exchange and consensus building between the utilities and stakeholders—for Connecticut's *first IRP since the 1980s*—including multiple generation owners, operators and developers; energy efficiency planners, regulatory oversight groups and public advocate organizations; environmental agency and environmental advocacy organizations, transmission owners and the regional transmission ISO; and consumers.
- In 2010, facilitated a greatly-expanded process during the subsequent Connecticut IRP to include nuclear power operators, developers, advocates and opposition groups, natural gas utilities and pipeline operators; energy security experts; and CHP developers, policymakers and commercial/industrial business.

Utility Planning

- Project Principal and Witness in the review of acquisition of generation resources in Arkansas (EAI –KGEN Hot Springs, AECC – Suez Hot Spring Plant).
- Managed strategic planning analyses for NU including the areas of competition, integrated resource planning (IRP), and utility strategic and organizational goal development.
- Led the team responsible for analysis and presentation materials for executive planning conferences, including utility diversification into energy services and merchant generation.
- Supervised generation planning for a large utility provided economic and financial analysis of power plant construction and capital additions and determined avoided costs.
- Developed a New England market entry business plan for Direct Energy's retail business.
- Advised the management team at Cape Light Compact on the merits of forming an Electric Cooperative.

Expert Witness

- Provided expert testimony on behalf of the Appalachian Voices, the Chesapeake Climate Action Network and the Virginia Sierra Club (collectively, "Environmental Respondants" in *Commonwealth of Virginia ex reL State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan* filing pursuant to § 56-59.7 et seq. 4 the Code of Virginia
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia *NSPI-128-13 In the Matter of an Application by Nova Scotia Power Incorporated for Approval of its 2014 Annual Capital Expenditure Plan*
- Presented expert testimony on behalf of the Arkansas Public Service Commission (ASPC) General Staff in *Docket NO.13-033-U IN THE MATTER OF THE PETITION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR A DECLARATORY ORDER FINDING THAT CERTAIN RENEWABLE WIND ENERGY PURCHASE AGREEMENTS ARE PRUDENT, AND WIND ENERGY PURCHASE AGREEMENTS ARE ENERGY ONLY CONTRACTS ELIGIBLE FOR COST RECOVERY THROUGH THE ENERGY COST RECOVERY RIDER*
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia in *NSPI-128-13 In the Matter of an Application by Nova Scotia Power Incorporated for Approval of Capital Expenditure for 2013 for South Canoe Wind Project - CI#42127 for \$93,091,536*
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia *NSPI-128-13 In the Matter of an Application by Nova Scotia Power Incorporated for Approval of its 2013 Annual Capital Expenditure Plan*
- Presented expert testimony on behalf of the Arkansas Public Service Commission (ASPC) General Staff in *Docket NO.12-067-U In the Matter of the Application of Oklahoma Gas and Electric Company for an Order Approving a Temporary Surcharge to Recover the Costs of a Renewable Wind Generation Facility*
- Presented expert testimony on behalf of the Arkansas Public Service Commission (ASPC) General Staff in *Docket NO.12-038-U In the Matter of Entergy Arkansas, Inc.'s Request for approval of certain wholesale base load capacity to serve EAI customers and a proposed rider recovery mechanism for these and other capacity costs.*
- Presented expert testimony on behalf of the Citizen's Action Coalition of Indiana before the State of Indiana Utility Regulatory Commission. *In the Matter of the application of Indiana Michigan Power Company requesting from the Commission, 1) A Finding that the Life Cycle*

Management program for the Donald C. Cooke Nuclear Plant is Reasonable and Necessary, 2) Approving of Cost and Schedule, 3) Authorizing Recovery through a periodic Rate Adjustment Mechanism, 4) Granting I&M Authority to Defer Costs and 5) Grant I&M future Rate Relief as may be Necessary and Appropriate.

- Presented expert Public Service Commission regarding IRP and Existing Nuclear Capital Projects. *In the Matter of the application of Indiana Michigan Power Company for a certificate of necessity pursuant to MCL 460.6s and related accounting authorizations*
- Presented expert testimony on behalf of the Arkansas Public Service Commission (ASPC) General Staff in *Docket NO.12-012-U In the Matter of Arkansas Electric Cooperative Corporation for Approval of the Acquisition of the Hot Spring*
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia in *Matter M04862 Application by Pacific West Commercial Corporation and NSPI for a Load Retention Rate*
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia in *Matter M04175 Proposed Amendments to Nova Scotia Power Inc.'s Load Retention Tariff*
- Provided expert testimony on behalf of the Small Business Advocate of Nova Scotia in *Matter M04892 Main Computer Centre Upgrade*
- Presented expert testimony on behalf of the Arkansas Public Service Commission (ASPC) General Staff in *Docket NO.11-069-U In the Matter of Entergy Arkansas, Inc.'s Request for Approval of the Acquisition of the Hot Spring Plant to Serve its Retail Customers*
- Presented expert testimony on behalf of the Oklahoma Attorney General before the Oklahoma Corporation Commission regarding IRP and baseload coal RFPs. (*Causes Nos. PUD 200500516, 200600030, 200700012, 2006 through 2007.*)
- Presented expert testimony before the Connecticut Department of Public Utility Control (DPUC) for Select Energy in Connecticut regarding its retail licensing application in 2000.
- Testified on customer impacts, pricing levels and utility planning during various electric industry restructuring proceedings in Connecticut and Massachusetts.
- Presented expert testimony on numerous occasions before the Connecticut DPUC regarding special contract approvals.

EMPLOYMENT HISTORY**La Capra Associates, Inc.***Principal Consultant**Managing Consultant*

Boston, MA

2009 - Present

2006 - 2009

Direct Energy North America*Independent Consultant*

Stamford, CT

2005

*Assignment – New England Market Entry Business Plan, Channel Management Plan Development***Northeastern US Markets**

Developed a business plan outlining the potential market entry for the client into the New England power market.

Cambridge Energy Research Associates*Associate Director, North American Electric Power**Eastern North American Energy Service Principal*

Cambridge, MA

2001 – February 2005

Developed independent primary research on various aspects of power markets around the Eastern U.S. and Canada, primarily responsible for the Northeast and Midwest markets, including price outlooks for energy and “full requirements” electric power. Analyzed market structure, supply/demand balances, price caps, market clearing prices, capacity markets, and generation technologies.

Northeast Utilities*Director, Retail Business Strategy - Select Energy**Managing Director, Marketing - Select Energy*

Berlin, CT

1997 – 2000

Directed market strategy, market research, product development, product management, strategic alliance development, retail electric energy supply management and pricing strategy for Northeast Utilities' unregulated retail energy service company, Select Energy, formed in 1997. Managed the activities of 31 professionals, including six managers. Negotiated a major retail supply agreement with the Massachusetts Municipal Association, which resulted in participation by 120 cities and towns.

Director, Market Pricing & Policy

1995 – 1997

Directed the work in all areas of pricing for Northeast Utilities and its operating companies: CL&P, WMECo, PSNH and HWPCo, with revenues totaling over \$3 billion. Three managerial units comprised the pricing organization, Cost of Service, Rates and Special Contracts. Led the development of proposals in unbundled rates prior to the restructuring of electric utility markets in Connecticut and Massachusetts. Responsible for developing utility discount rate and energy efficiency offerings for large customers in Business Retention and Economic Development circumstances, which were coordinated and packaged into state and local economic development agencies incentive packages.

Manager, Market Analysis

1990 – 1995

Led market planning and market research functions in developing strategies to prepare NU for the competitive business environment, including sales force program training and development.

Manager, Strategic Analysis & Long Term Resource Planning

1987 – 1990

Held various positions within the Capacity Planning Department

1981 – 1987

United Technologies Corporation*Analytical Engineer – International Fuel Cells/Pratt & Whitney Aircraft*

Hartford, CT

1977 – 1981

EDUCATION

University of Connecticut <i>Masters of Business Administration</i>	Storrs, CT 1987
Rensselaer Polytechnic Institute – HGC <i>M.S., Mechanical Engineering</i>	Troy, NY 1982
Cooper Union <i>B.E., Mechanical Engineering</i> <i>Elected to Pi Tau Sigma – Mechanical Engineering Honorary Fraternity</i>	New York, NY 1977

PROFESSIONAL ACHIEVEMENTS

- Recipient, **1998 Northeast Utilities Chairman’s Award** for innovation in developing offerings and negotiating with large aggregation groups
- Recipient, **1996 Northeast Utilities Chairman’s Award** and **1996 Retail Business Group’s President’s Award** for the role in leading efforts in the Retail Competition Pilot in New Hampshire
- Recipient, **Northeast Utilities 1994 Retail Business Group’s President’s Award** for developing and successfully implementing special utility contracting efforts
- Licensed **Professional Engineer** - State of Connecticut
- Past appointee to the **Electric Power Research Institute (EPRI)** Industrial Business Unit Council
- Participation in the Energy Committee of the Manufacturer’s Alliance of Connecticut, Inc.
- Participation in various **NEPOOL** Committees
- Member of the **Association of Energy Engineers**
- Author of the paper ‘**Fulfilling on the Promises of Deregulation**’
- Speaking experience includes:
 - 2012, Speaker at EUCI *Resource Planning: A Practitioner’s Toolkit for Current Issues*
 - U.S. Chamber Of Commerce Satellite Seminar Series on Deregulation
 - Massachusetts HEFA sponsored conference on *Organizing Energy Buying Groups*
 - INFOCAST Seminars on *Negotiating Power Contracts*
 - Interview on a nationally syndicated news show, *First Business*, on energy deregulation

Jeffrey D. Bower

Analyst

Jeffrey Bower joined La Capra Associates as an Analyst in 2010. Mr. Bower's work at La Capra Associates includes being an integral part of the Market Analytics team responsible for maintaining and running the firm's wholesale electricity market model. He also provides regulatory and legislative research and analytical support. He has experience with renewable energy potential studies as well as Renewable Portfolio Standard (RPS) evaluation. Mr. Bower has contributed to various projects related to transmission facility development and evaluation, including benefits analysis, congestion impact evaluation, and facility siting.

Mr. Bower received his Master's Degree in Environmental Management, from the Nicholas School of the Environment at Duke University. He also has advanced experience applying geographic information systems (GIS) technology and software to energy analysis, including a recent project developing a customer-sited wind power potential analysis using various spatial datasets.

PROFESSIONAL EXPERIENCE

- Evaluated Midwest utility proposal to join a regional transmission organization (RTO). Analyzed impacts of transition on transmission and generation resource adequacy and planning, as well as retail rate impacts.
- Performed analysis of hydroelectric generator sales in support of power plant asset valuation. Evaluated plant comparability and overall energy and capacity market trends to estimate asset value.
- Evaluated a statewide renewable portfolio standard and modeled emissions and generation portfolio impacts of multiple renewable build out scenarios. Assessed comparative emissions impacts of changes to non-renewable resource portfolios.
- Performed a review of a proposed Midwest transmission project, reviewing project need and evaluating GIS siting criteria and alternative route scoring mechanisms.
- Analyzed LMP and congestion price impacts of unplanned generator outages in NYISO system.
- Developed customer-sited small wind power potential analysis. Utilized spatial data sets including wind speed, land cover, and demographics to develop specific regional potential estimates.
- Performed meta-analysis on economic energy efficiency potential, incorporating impacts of state and federal legislation as well as escalating utility avoided costs.
- Performed GIS analysis on wave power potential in North Carolina's offshore waters and assessed site-specific cost of electricity using economic modeling. Presented results to Governor Beverly Perdue's Scientific Advisory Panel on Offshore Energy.
- Researched and composed a comprehensive guide to community wind power development in North Carolina.

EMPLOYMENT HISTORY

La Capra Associates <i>Analyst</i>	Boston, MA 2010 – Present
Duke University <i>Masters Project: Spatial Analysis of Wave Power Potential</i>	Durham, NC 2009 – 2010
Climate Change Policy Partnership <i>Transportation Research Assistant</i>	Durham, NC 2009 – 2010
North Carolina Sustainable Energy Association <i>Wind Power Research Analyst (Internship)</i>	Raleigh, NC 2009

EDUCATION

Duke University <i>Master of Environmental Management, Nicholas School of the Environment</i>	Durham, NC 2010
Duke University <i>Certificate in Geospatial Analysis, Nicholas School of the Environment</i>	Durham, NC 2010
Tufts University <i>BA (Cum Laude) with Major in Sociology</i>	Medford, MA 2004

Alexander J. Cochis

Alexander Cochis is an energy industry professional with 20 years of legal experience and specializes in state and federal regulatory requirements associated with gas and electric distribution companies. As a consultant, Alex has project experience in drafting proposals, project management, regulatory requirements, regulatory strategy, drafting testimony and testifying as an expert. His subject matters include rate theory, FERC Order 1000, wholesale power contracts, restructuring, specialized cost recovery mechanisms for gas and electric distribution companies, retail rate consequences of mergers and storm response. Alex's has extensive litigation experience before the Massachusetts Department of Public Utilities in gas and electric retail rate cases, reconciling filings, regulatory settlements as well as appeals before the Supreme Judicial Court, and has appeared before the Federal Energy Regulatory Commission.

EMPLOYMENT HISTORY

La Capra Associates, Inc.

Consultant

Boston, MA

2008 – Present

- Analyze filings for regulatory requirements, evaluate case strategy and provide tactical recommendations.
- Review discovery responses and draft testimony, briefs and reports.
- Manage projects in coordination with staff consultants and subcontractors.

Massachusetts Attorney General's Office

Assistant Attorney General, Utilities Division

Boston, MA

2000 – 2008

- Designated lead counsel in major rate cases, settlement proceedings and judicial appeals.
- Analyzed filings to support utility proceedings and develop litigation plan.
- Drafted regulatory briefs, settlements and comments for administrative proceedings.
- Coordinated with outside consultants and staff experts on strategic and tactical goals.

Smith & Brink, PC

Civil litigation Associate

Quincy, MA

1995 – 2000

- Drafted briefs for complex civil cases in state and federal court, and associated appeals.

PROFESSIONAL EXPERIENCE as TESTYING WITNESS

- Connecticut Natural Gas Company, Docket No. 13-06-08 (2014) (specialized capital program)

EDUCATION

Western New England College School of Law

Juris Doctor

Springfield, MA

1994

Suffolk University Law School
Visiting JD Student

Boston, MA
1993

Vassar College
Bachelor of Arts, Economics
With Distinction on Departmental Comprehensive Economics Examination.

Poughkeepsie, NY
1989



STAN C. FARYNIARZ, CEP

Managing Consultant

Mr. Faryniarz is a member of La Capra Associates' senior management team and serves on its Board of Directors. He has consulted on power procurement and transactions, economic and rate analyses and strategic matters for a wide variety of energy industry and other clients in New England, the U.S. and Canada, concentrating in particular on public power systems and industrial clients.

Mr. Faryniarz has an extensive range of skills and experience in economic and financial analyses, contract negotiations, regulatory, government and consumer relations for utilities, customers and industry groups, economic impact studies and studies for clients undergoing legislative or regulatory scrutiny. He has substantial expertise in the New England, New York and PJM power markets, which has lead to highly successful outcomes for clients for whom various wholesale and retail power procurements and transactions have been conducted. Mr. Faryniarz is the primary advisor to, or manager of, client power supply portfolios totaling almost 300 MW. He also specializes in operational and economic analyses for utilities, industrial and aggregated commercial customers, and regulators.

Mr. Faryniarz has evaluated, prepared and defended financial proformas, load forecasts, power cost and allocated cost of service analyses, rate design studies and tariffs, integrated resource plans, market studies, special contracts, asset valuations and other components of successful utility and power purchasing programs and operations.

RECENT AND RELEVANT EXPERIENCE

Power Procurement, Transactions, Commerce & Planning

- Lead portfolio advisor for 12 years to the National Passenger Railroad Corporation (Amtrak) in: utility interconnection issues, rates, special contracts and other rate designs, and retail purchase power procurement and power supply management for an annual \$105 million, 200+ MW portfolio of traction and non-traction accounts in eight states and three northeastern U.S. control areas. Structured and negotiated power procurements and hedging transactions, special contracts, counterparty credit guarantees, rate designs and provided expert testimony that have saved Amtrak tens of millions of dollars supplying its electrified Northeast Corridor train and station service, while stabilizing costs.
- Advisor to large retail electricity end-users and utilities, ranging from commuter rail providers to defense contractors to small wholesale utilities, on portfolio development and power supply procurement.
- Assisted the WI CUB, Wisconsin Power & Light (WPL), WI PSC staff and interested parties over 2007-2008 in developing hedge position limits, purchasing strategy and protocols for WPL's Risk Management Plan. The WPL Risk Management Plan is a confidential guidebook governing electricity and natural gas procurement practices and protocols for this 2,500 MW Wisconsin utility. These services led to modifications to the Risk Management Plan that helped ensure cost-effectiveness was as an important criterion in considering of the merits of various hedge transactions, in addition to power costs, retail rates and earnings stabilization.

- Advisor to Harvard University for a number of years, a direct ISO-NE wholesale participant supplying Harvard's retail load in Boston and Cambridge, on the economics, portfolio fit and contracts with proposed renewable projects and other resources.
- Power supply manager for Littleton (NH) Water & Light Department for six years. Manage the ISO-NE participation, load and resources bid submissions, bill verification, annual budget and monthly reporting functions. Assisted Littleton in becoming a direct ISO-NE wholesale market participant, obtaining an investment grade Moody's credit rating and working on identifying and securing long-term, renewables-based resources to supplement its portfolio.
- Power supply manager for Washington Electric Cooperative for 11 years, and a leader in contracting for and developing renewable resources as substantial additions to this system's power supply portfolio. Advise on the power cost resources portfolio management strategy, long-term power cost and transmission budget, rates, power contracts and procurement. Assisted in procuring or developing a number of landfill methane baseload and wind resources, and procuring or selling renewable energy certificates. Assisted WEC with replacement of an expired nuclear entitlement in 2002 and backfilling with renewable-based supply since then for over 30% in total power cost savings and over 50% in total after RECs resales the last several years. Was a lead advisor and figured prominently in the successful regulatory approvals and receipt of close to \$10 million in low-cost debt financing for development of a substantial and growing 8.0 MW landfill methane project, one of only two new sizeable power projects developed in Vermont in the last several years. Currently pursuing other renewable projects for this utility. Primary author of strategic 20-year Integrated Resource Plans.
- A lead advisor to Vermont Electric Cooperative, which was successful in more than doubling its size via acquisition of a larger Vermont IOU system. Provided expert testimony to the Vermont Public Service Board on associated valuation matters, including forecast market prices and costs for the combined system's net short position, and the decrement to value of a substantial partial-contract disallowance of one of the IOU system's major supply contracts. Simultaneously advised this utility on successfully procuring power supply to meet a 50% net short position starting at the end of 2003. A lead author of its two most recent strategic 20-year Integrated Resource Plans.
- An advisor to a number of financial organizations and utilities on the proformas, value and financing requirements of various renewable energy projects including hydro, landfill methane and wind projects.
- An advisor to a number of renewable (hydro, landfill methane and wind) project developers on financial modeling, contractual provisions and control area export and import commerce issues for developers of New York State projects selling into New England.
- Prepared feasibility studies and, in one case, a subsequent business plan, for Harvard University, Southeastern Pennsylvania Transit Authority, and several Chambers of Commerce in Vermont and Rhode Island on creation of alternative commercial and industrial sector power purchase models.
- Prepared, defended and achieved regulatory approval for several integrated resource plans for municipal electric and cooperative utilities in Vermont, pursuant to Public Service Board regulations and Vermont 20-Year Electric Plan guidelines.

Financial & Valuation

- Provided valuations to private capital firms and Penobscot River Restoration Trust on various northern New England hydro facilities and other renewable power projects.

- Prepared valuations of billions of dollars of utility generation plant on behalf of Ohio and Arkansas regulators, for determinations of stranded cost position.
- Sponsored valuations and expert testimony involving a NASDAQ-traded energy company, an investor-owned transmission utility and consumer-owned electric utilities in Maine and Vermont.

Cost Allocation & Rate Design

- Prepared and sponsored in testimony over a dozen cost of service, cost allocation, rate design and three demand elasticity studies for numerous electric and water companies in New England.

EMPLOYMENT HISTORY

La Capra Associates, Inc. <i>Managing Consultant</i>	Boston, MA 1999 - Present
Decision Economics LLC <i>President & Consultant</i>	Underhill, VT 1994 - 1999
Weil & Howe, Inc. <i>Consultant</i>	Augusta, ME 1990 – 1999
Vermont Department of Public Service <i>Special Counsel for Financial Analysis</i>	Montpelier, VT 1986 – 1990

EDUCATION

Association of Energy Engineers <i>Certified Energy Procurement (CEP) Professional</i> <i>Energy Supply and Risk Management</i>	Atlanta, GA 2008
University of Vermont <i>Masters in Public Administration with extensive</i> <i>M.B.A. curriculum in Finance and Statistics</i>	Burlington, VT 1986
Michigan State University <i>NARUC Graduate Studies Program in Regulatory Economics</i>	East Lansing, MI 1986
University of Vermont <i>B.A. in Economics, Cum Laude with Departmental Honors</i> <i>Omicron Delta Epsilon, International Economics Honor Society</i> <i>Awarded Kidder Medal, Most Outstanding Senior Man (Academic, Leadership and Service)</i>	Burlington, VT 1982



Carolyn Gilbert

Consultant

Carolyn Gilbert joined La Capra Associates in 2007, bringing over nine years of experience in renewable energy, environmental business strategy, and engineering consulting. She is an expert in state and regional renewable development activities. Her recent work includes asset valuation, renewable energy certificate (REC) price forecasting, renewable energy project evaluation, and renewable energy potential studies. Specifically, she was a contributing author to the renewable energy technical paper for the Connecticut integrated resources plan; has analyzed the renewable energy potential for New England and for a southern state; and has modeled REC prices for Midwestern, New England and New York clients. She has conducted economic analyses of offshore and onshore wind farms, a landfill gas facilities and a large scale solar PV project. She has also provided guidance to NYSERDA on the cost of the customer sited renewable energy program and evaluated the financial impact of solar photovoltaic (PV) installation for commercial customers.

Prior to joining the firm, Ms. Gilbert's strategy consulting experience included work for US and European wind turbine manufacturers including a US market sizing analysis and market entry study and transportation logistical analysis for two different manufacturers. She also assessed environmental market opportunities for a Fortune 500 company. As an environmental engineer at Camp Dresser and McKee, Ms. Gilbert conducted planning and design work for municipal water and wastewater systems. This work included wastewater treatment plant facilities plans and water distribution system master plans. She holds a BE from the Thayer School of Engineering at Dartmouth College and an MBA from the University of Michigan.

RELEVANT EXPERIENCE

Asset Valuation

- Developed financial model used by firm to value hydropower assets.
- Analyzed the value of 4 hydropower assets on the Connecticut River for property tax purposes in both New Hampshire and Vermont.
- Conducted valuation of Maine generation assets for contracted sale under arbitration.
- Conducted valuation of Vermont hydropower asset for contracted sale under arbitration.

Renewable Policy Analysis and Potential Studies

- Conducted study on Central Procurement Options for the Massachusetts DOER and Attorney General's Office.
- Completed a renewable potential study for a utility client in southern state.
- Developed forecasts of renewable energy costs for a NYSERDA solar study.
- Developed estimates of RPS compliance costs and RECs based on a range of RPS budgets and targets for NYSERDA
- Developed extensive spreadsheet model to determine the bill impact of Solar PV installation for commercial customers in NY.
- Analyzed New England renewable energy supply curve for the Maine Governor's Task Force. Analysis led to wind development goals for the state.
- Testified before the North Carolina Utilities Commission on the potential for biomass energy to satisfy the North Carolina Renewable Energy and Energy Efficiency Portfolio Standard.
- Analyzed the rate impact of the North Carolina Renewable Energy and Energy Efficiency Portfolio Standard for the North Carolina Sustainable Energy Association.
- Developed estimates of renewable resource potential and costs and analyzed the costs of several resource portfolios for the North Carolina Energy Policy Council as part of La Capra Associates study on the Renewable Energy and Energy Efficiency Portfolio Standard.
- Analyzed the rate impact of a proposed renewable portfolio standard for the State of Virginia for Public Policy Virginia.
- Published peer reviewed paper illustrating the connection between greenhouse gas reduction and waste reduction.

Renewable Project Analysis

- Analyzed environmental benefits of tidal energy and helped Maine developer understand market value of tidal energy project.
- Evaluated the financial model of a large scale solar project in Maine
- Evaluated wind projects and monitored the RFP process in Oklahoma as an independent evaluator.
- Evaluated wind PPAs for clients in North Dakota, Arkansas, and Oklahoma.
- Developed and evaluated financial models for both wind farms and landfill gas facilities.

REC Price Forecasting

- Manage La Capra Associates' Renewable Energy Certificate (REC) market forecast model for New England and New York.
- Estimated the REC price impact of a large New England wind farm on the New England market in future.
- Monitor status of renewable energy project and renewable energy policies in the Northeast.

Utility Planning

- Developed analysis of impact of wind output variability on utility power costs as part of utility risk planning.
- Contributing author to the renewable energy technical paper for the Connecticut integrated resources plan
- Facilitated discussion and developed analysis around New England renewable supply to lead stakeholders to common understanding of the key renewable issues during the Connecticut Procurement Planning Process.
- Developed an Integrated Resource Plan for a Vermont Utility.
- Created 20-year water system master plans for several municipalities.
- Coordinated function groups for a wastewater treatment facility upgrade planning study and created security plans for water utilities

EMPLOYMENT HISTORY

La Capra Associates

Boston, MA

Consultant

2007 – present

Independent Consultant

Boston, MA

Consultant to Emerging Energy Research and Esty Environmental Partners

2006-2007

- Conducted U.S. market entry study for European wind turbine manufacturer.
- Conducted U.S. logistics and market sizing study to determine manufacturing strategy for European wind manufacturer.
- Evaluated environmental business opportunities and created a new market entry strategy for a Fortune 500 High Tech company.

Environmental Operating Solutions, Inc.

Falmouth, MA

Marketing and Business Development Intern

2005

- Spearheaded outreach to potential customers, including online and print journal articles resulting in inquiries from China, India, Spain and the U.S.

GE Energy Wind Americas

Tehachapi, CA

Consultant

2005

- Co-led strategic, competitive analysis of transportation in wind turbine industry.

Camp Dresser and McKee, Inc.

Cambridge, MA

Environmental Engineer

2000–2004

- Developed solutions for municipal drinking water and wastewater systems for international engineering consulting firm; and improved water system efficiency through water distribution system modeling.

Tellus Institute

Boston, MA

Research Analyst

1998–2000

- Researched benefits of solid waste management alternatives at non-profit.
- Developed model to quantify the environmental and economic impact of waste reduction. Model was valued at \$35,000 and used as an in-kind contribution for projects.

EDUCATION

University of Michigan

Ann Arbor, MI

Stephen M. Ross School of Business

Master of Business Administration

2006

Dartmouth College

Hanover, NH

Thayer School of Engineering

Bachelor of Engineering

1998

Dartmouth College

Bachelor of Arts, Engineering and Earth Science

1997



Richard S. Hahn

Principal Consultant

Mr. Hahn is a senior executive in the energy industry, with diverse experience in both regulated and unregulated companies. He joined La Capra Associates in 2004. Mr. Hahn has a proven track record of analyzing energy, capacity, and ancillary services markets, valuation of energy assets, developing and reviewing integrated resource plans, creating operational excellence, managing full P&Ls, and developing start-ups. He has demonstrated expertise in electricity markets, utility planning and operations, sales and marketing, engineering, business development, and R&D. Mr. Hahn also has extensive knowledge and experience in both the energy and telecommunications industries. He has testified on numerous occasions before the Massachusetts Department of Public Utilities, and also before FERC.

SELECTED EXPERIENCE – LA CAPRA ASSOCIATES

1. Reviewed proposed TOU rates by PPL Electric on behalf of the Pennsylvania Office of Consumer Advocate
2. Performed an analysis of a proposal to convert the Valley Power Plant in Milwaukee to switch from coal to natural gas; included a reliability assessment of the need for the plant to maintain local reliability
3. Reviewed the adequacy of the supply of renewable energy certificates for 2015 and 2016 for impact on the Rhode Island Renewable Energy Standard
4. Reviewed a purchased power agreement between National Grid and Champlain / Bowers Wind for the Rhode Island Division of Public Utilities and Carriers
5. La Capra Associates was retained by the Nova Scotia Small Business Advocate to review and analyze the 2013 Annual Capital Expenditure (“ACE”) Plan for Nova Scotia Power Incorporated (“the Company” or “NSPI”). I served as a key member of the team responsible for reviewed transmission projects.
6. Served as an advisor to the Belmont Municipal Light Department in its efforts to upgrade its transmission interconnection to 115KV.
7. Performed an assessment of the proposed merger of Peoples Natural Gas and Equitable Gas Company for the Pennsylvania Office of Consumer Advocate.
8. Reviewed the proposed default service procurement of UGI Utilities to procure standard offer service power supplies for its non-shopping customers for 2014 to 2017.
9. Performed an audit of Rocky Mountain Power Company’s 2012 Energy Balancing Account, including a review of the Company's hedging program.
10. Reviewed a request by Wisconsin Public Service to implement the System Modernization and Reliability Project, a large-scale capital program to improve system reliability in Northern Wisconsin.
11. Served as a member of a La Capra Associates team advising the Arkansas Public Service Commission Staff regarding Entergy's Application to transfer ownership of transmission assets to ITC.

12. Reviewed and analyzed NGRID proposed 2013 LTCRER factor; provided written comments to RI PUC.
13. Reviewed Rocky Mountain Power Company's Energy Balancing Account filing for 2011; filed testimony before the Utah PSC.
14. Reviewed NGRID proposed tariff revisions for recovery of Long-Term Renewable Energy Contracts; provided written comments to RI PUC.
15. Analyzed proposed environmental upgrades to the Flint Creek coal unit in Arkansas; filed written testimony before the Arkansas PSC.
16. WI CUB WEPCO 2013 Rate Case; review prudence of capital and fuel costs; filed written testimony before the Wisconsin PSC.
17. Reviewed and analyzed a request for an Advanced Determination of Prudence for a new wind generation facility; filed written testimony before the North Dakota PSC.
18. Reviewed proposed 2013 -2015 Default Service Procurement Plan for PPL Utilities; filed written testimony before the Pennsylvania PUC.
19. Analyzed forecast of projected capital additions to plant in service for forward-looking test year in Utah rate case. Filed testimony before the Utah Public Service Commission.
20. Review and analysis of National Grid's proposed 2013 Standard Offer Service and Renewable Energy Standard procurement plan on behalf of the Rhode Island Division of Public utilities and Carriers.
21. Review and analysis of National Grid's proposed long term renewable contracting plan on behalf of the Rhode Island Division of Public utilities and Carriers.
22. Review and analysis of a long-term renewable energy contract between Black Bear Hydro and National Grid on behalf of the Rhode Island Division of Public Utilities and Carriers.
23. Reviewed proposed 2013 -2015 Default Service Procurement Plan for PECO Energy on behalf of the Pennsylvania Office of Consumer Advocate.
24. Review National Grid's 2012 Electric Retail Rate Filing requesting Commission approval of various charges and adjustment factors for the Rhode Island Division of Public Utilities and Carriers.
25. Analyzed the request to the Wisconsin Public Service Commission for a CPCN for the Hampton - Rochester - La Crosse Baseline Reliability Project.
26. Performed an assessment of the TOU rates proposed by PPL Electric Utilities before the Pennsylvania Public Utilities Commission; Presented expert testimony providing the results of that assessment.
27. Reviewed the proposed merger between Exelon and Constellation Energy for its impact on market power; filed testimony before the Pennsylvania Public Utilities Commission.
28. Reviewed the proposed merger between Exelon and Constellation Energy for its impact on market power; filed testimony before the Federal Energy Regulatory Commission and the Maryland Public Service Commission.
29. Conducted an assessment of the request to the North Dakota Public Service Commission for an Advanced Determination of Prudence for the Montana Dakota Utilities GT; filed testimony before the North Dakota Public Service Commission.

30. Conducted an assessment of the request to the North Dakota Public Service Commission for an Advanced Determination of Prudence for the Big Stone Air Quality Control System; filed testimony before the North Dakota Public Service Commission.
31. Analyzed proposed 2012 monitored and non-monitored fuel costs, market sales and revenues, capacity position, and performance parameters for Wisconsin Electric Power; filed testimony before the Public Service Commission of Wisconsin.
32. Analyzed proposed ceiling prices for Distributed Generation procurement for the Rhode Island Division of Public Utilities and Carriers in Docket 4288.
33. Reviewed proposed changes to National Grid's interconnections standards for the Rhode Island Division of Public Utilities and Carriers in Docket 4276.
34. Reviewed proposed changes to National Grid's Distributed Generation Enrollment Process for the Rhode Island Division of Public Utilities and Carriers in Docket 4277.
35. Analyzed proposed 2012 monitored and non-monitored fuel costs, market sales and revenues, capacity position, and performance parameters for Northern States Power Wisconsin; filed testimony before the Public Service Commission of Wisconsin.
36. Analyzed proposed 2012 monitored and non-monitored fuel costs, market sales and revenues, capacity position, and performance parameters for Madison Gas & Electric; filed testimony before the Public Service Commission of Wisconsin.
37. Analyzed proposed 2012 monitored and non-monitored fuel costs, market sales and revenues, capacity position, and performance parameters for Wisconsin Public Service; filed testimony before the Public Service Commission of Wisconsin.
38. Reviewed the proposed merger between Duke Energy and Progress Energy for compliance with merger approval standards and the impact of the merger on customers; filed testimony before the North Carolina Public Utilities Commission and the South Carolina Public Service Commission.
39. Analyzed the De-List Bid submitted by Vermont Yankee in ISO-NE capacity auctions. Filed statement at FERC presenting the results of that assessment.
40. Performed an assessment of a proposal by Nova Scotia Power to increase spending on vegetation management activities as part of the 2012 rate case; filed testimony before the Nova Scotia Utility and Review Board.
41. Reviewed and analyzed a proposed Purchased Power Agreement between National Grid and Orbit Energy; filed testimony before the Rhode Island Public Utility Commission in Docket 4265.
42. Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Ascutney Vermont.
43. Reviewed and analyzed NGRID proposed SOS procurement plan and RES Compliance plan for 2012; provided testimony before the Rhode Island Public Utility Commission in Docket 4227.
44. Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Bennington Vermont.
45. Prepared follow-on analysis of Utah resource acquisition in rate case in Docket 10-035-124
46. Reviewed and analyzed a proposed retail rate increase by Fitchburg Gas and Electric Company before the Massachusetts Department of Public Utilities. Provided expert

testimony before the Massachusetts Department of Public Utilities regarding the Company's proposed Capital Spending Plan, and an accompanying recovery mechanism.

47. Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Georgia, Vermont.
48. Reviewed and analyzed damages claimed in litigation between a developer of renewable energy facilities and the owner of the host site.
49. Evaluated the decision of PacifiCorp to acquire new generating resources in Utah. Filed testimony before the Public Service Commission of Utah.
50. Served as a principal advisor and key team member in La Capra Associates' assessment of strategic options for Entergy Arkansas, Inc. subsequent to its withdrawal from the Entergy System Agreement.
51. Reviewed the issues and documentation related to a complaint regarding the net metering issues for the Portsmouth Wind Turbine for the Rhode Island Divisions of Public Utilities and Carriers
52. Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Jay, Vermont.
53. Reviewed and evaluated the construction of and cost recovery for a large cogeneration plant for a mid-west utility; utilized heat balance analysis to develop new cost allocators between steam and electric sales.
54. Analyzed fuel costs, market sales and revenues, capacity position, and performance parameters for a large- mid-west utility.
55. Performed a review and analysis of the proposed merger between FirstEnergy and Allegheny Energy. Provided expert testimony before the FERC and the Pennsylvania Public Utilities Commission regarding merger policy, benefits and market power issues.
56. Performed a study of non-transmission alternatives to a proposed transmission project in the Lewiston-Auburn area of Central Maine Power Company's service territory. Testified before the Maine Public Utilities Commission.
57. Analyzed a proposed plan by National Grid to procure 2011 default service power supplies and comply with Renewable Energy Standards. Provided expert testimony before the Rhode Island Public Utilities Commission in Docket 4149.
58. Served as an advisor to the Pennsylvania Office of Consumer Advocate in reviewing 2011 default service plans for PECO Energy.
59. Served as an advisor to the Pennsylvania Office of Consumer Advocate in reviewing 2011 default service plans for PPL Electric Utilities.
60. Analyzed a purchase power agreement between National Grid and on offshore wind project in Rhode Island. Provided expert testimony before the Rhode Island Public Utilities Commission.
61. Reviewed and analyzed a proposed retail rate increase by Western Massachusetts Electric Company before the Massachusetts Department of Public Utilities. Provided expert testimony before the Massachusetts Department of Public Utilities regarding the Company's proposed Capital Plan, and an accompanying recovery mechanism.
62. Served as an advisor to the developer of a utility-scale Solar PV facility in Massachusetts.

63. Evaluated a proposed Solar PV installation for a large retail customer in Massachusetts. Performed an analysis of the appropriate rate of return and its impact on facility electric costs and financial feasibility.
64. Assessed the economic impact of an additional interconnection between ISO-NE and NYISO; analyzed impact on market prices and congestion.
65. Reviewed and analyzed the capacity position of a large mid-west utility and the impact of that position on electric rates.
66. Performed an economic evaluation of a proposed transmission line in New England. Assessed the project's ability to deliver renewable energy to load centers and the impact of the project on Locational Marginal Prices.
67. Analyzed a proposed interconnection of a large new industrial load in Massachusetts. Evaluated proposed substation configuration and developed alternatives that achieved comparable reliability at lower costs. Assessed cost recovery options.
68. Reviewed the Energy Efficiency and Conservation Programs proposed by Pennsylvania Power & Light in response to Act 129, Pennsylvania legislation that requires Electric Distribution Companies to achieve certain annual consumptions and demand reduction by 2013. Provided expert testimony before the Pennsylvania Public Utilities Commission regarding program design, benefit cost analyses, and cost recovery.
69. Reviewed the Energy Efficiency and Conservation Programs proposed by Philadelphia Electric Company in response to Act 129, Pennsylvania legislation that requires Electric Distribution Companies to achieve certain annual consumptions and demand reduction by 2013. Provided expert testimony before the Pennsylvania Public Utilities Commission regarding program design, benefit cost analyses, and cost recovery.
70. Assisted in the review and analysis of a proposed retail rate increase by National Grid before the Rhode Island Public Utilities Commission. Provided expert testimony before the Rhode Island Public Utilities Commission regarding the Company's proposed Inspection & Maintenance Program, its Capital Plan, its Storm Funding Plan, and its Facilities Plan
71. Reviewed and analyzed Time-of-Use rates proposed by Pennsylvania Power & Light. Provided expert testimony before the Pennsylvania Public Utilities Commission regarding compliance with Commission requirements, rate design, cost recovery, and consumer education issues.
72. Assisted in the review and analysis of a proposed retail rate increase by National Grid before the Massachusetts Department of Public Utilities. Provided expert testimony before the Massachusetts Department of Public Utilities regarding the Company's proposed Inspection & Maintenance Program, its Capital Plan, its Storm Funding Plan, and its Facilities Plan.
73. Performed a review and analysis of the proposed merger between Exelon and NRG. Provided expert testimony before the Pennsylvania Public Utilities Commission regarding merger policy, benefits and market power issues.
74. Reviewed the needs analysis and load forecast supporting a proposed Transmission Project in Rhode Island. Provided expert testimony before the Rhode Island Public Utilities Commission.

75. Performed an assessment of plans to procure Default Service Power Supplies for a Rhode Island utility. Provided expert testimony before the Rhode Island Public Utilities Commission.
76. Served as an advisor to Vermont electric utilities regarding the evaluation of new power supply alternatives. Developed and applied a probabilistic planning tool to model uncertainty in costs and operating parameters.
77. Conducted a review of Massachusetts Electric Company's proposal to construct, own, and operate large scale PV solar generating units. Served as an advisor to the Massachusetts Attorney General in settlement negotiations. Performed an analysis of the appropriate rate of return and its impact on ratepayer costs and financial feasibility. Provided expert testimony before the Massachusetts Department of Public Utilities.
78. Conducted a review of Western Massachusetts Electric Company's proposal to construct, own, and operate large scale PV solar generating units. Served as an advisor to the Massachusetts Attorney General in settlement negotiations. Performed an analysis of the appropriate rate of return and its impact on ratepayer costs and financial feasibility. Provided expert testimony before the Massachusetts Department of Public Utilities.
79. Served as a key member of a La Capra Associates Team evaluating wind generation RFPs in Oklahoma.
80. Performed an assessment of plans to procure Default Service Power Supplies for Pennsylvania utilities. Provided expert testimony before the Pennsylvania Public Utilities Commission.
81. Performed an assessment of a merchant generator proposal to construct, own, and operate 800 MW of large scale PV solar generating units in Maine.
82. Analyzed proposed environmental upgrades to the Columbia Energy Center coal-fired generating station in Wisconsin, including an economic evaluation of this investment compared to alternative supply resources. Provided expert testimony before the Public Service Commission of Wisconsin.
83. Analyzed proposed environmental upgrades to the Edgewater 5 coal-fired generating unit in Wisconsin, including an economic evaluation of this investment compared to alternative supply resources. Provided expert testimony before the Public Service Commission of Wisconsin.
84. Analyzed proposed environmental upgrades to the Oak Creek coal-fired generating units in Wisconsin, including an economic evaluation of this investment compared to alternative supply resources. Provided expert testimony before the Public Service Commission of Wisconsin.
85. Reviewed Pennsylvania Act 129 and Commission rules for Energy Efficiency Plans
86. Performed a study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Maine.
87. Served as a key member of the La Capra Associates Team advising the Connecticut Energy Advisory Board (CEAB) on a wide range of energy issues, including integrated resources plan and the need for and alternatives to new transmission projects.
88. Performed a study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Vermont.

89. Served as an advisor to the Delaware Public Service Commission and three other state agencies in the review of Delmarva Power & Light's integrated resource plan and the procurement of power supplies to meet SOS obligations.
90. Served as an expert witness in litigation involving a contract dispute between the owner of a merchant powerplant and the purchasers of the output of the plant.
91. Served as an advisor to the Maryland Attorney General's Office in the proposed merger between Constellation Energy and the FPL Group.
92. Reviewed and analyzed outages for Connecticut utilities during the August 2006 heat wave. Prepared an assessment of utility filed reports and corrective actions.
93. Conducted a study of required planning data and prepared forecasts of the key drivers of future power supply costs for public power systems in New England.
94. Reviewed and analyzed Hawaiian Electric Company integrated resource plan and its DSM programs for the State of Hawaii. Prepared written statement of position and testified in panel discussions before the Hawaii Public Utility Commission.
95. Assisted the Town of Hingham, MA in reviewing alternatives to improve wireless coverage within the Town and to leverage existing telecommunication assets of the Hingham Municipal Light Plant.
96. Conducted an extensive study of distributed generation technologies, options, costs, and performance parameters for VELCO and CVPS.
97. Analyzed and evaluated proposals for three substations in Connecticut. Prepared and issued RFPs to seek alternatives in accordance with state law.
98. Performed an assessment of merger savings from the First Energy – GPU merger. Developed a rate mechanism to deliver the ratepayers share of those savings. Filed testimony before the PA PUC.
99. Prepared long term price forecasts for energy and capacity in the ISO-NE control area for evaluating the acquisition of existing powerplants.
100. Conducted an assessment of market power in PJM electricity markets as a result of the proposed merger between Exelon and PSEG. Developed a mitigation plan to alleviate potential exercise of market power. Filed testimony before the PA PUC.
101. Performed a long-term locational installed capacity (LICAP) price forecast for the NYC zone of the NYISO control area for generating asset acquisition.
102. Served as an Independent Evaluator of a purchase power agreement between a large mid-west utility and a very large cogeneration plant. Evaluated the implementation of amendments to the purchase power agreement, and audited compliance with very complex contract terms and operating procedures and practices.
103. Performed asset valuation for energy investors targeting acquisition of major electric generating facility in New England. Prepared forecast of market prices for capacity and energy products. Presented overview of the market rules and operation of ISO-NE to investors.
104. Assisted in the performance of an asset valuation of major fleet of coal-fired electric generating plants in New York. Prepared forecast of market prices for capacity and energy products. Analyzed cost and operations impacts of major environmental legislation and the effects on market prices and asset valuations.

105. Conducted an analysis of the cost impact of two undersea electric cable outages within the NYISO control area for litigation support. Reviewed claims of cost impacts from loss of sales of transmission congestion contracts and replacement power costs.
106. Reviewed technical studies of the operational and system impacts of major electric transmission upgrades in the state of Connecticut. Analysis including an assessment of harmonic resonance and type of cable construction to be deployed.
107. Conducted a review of amendments to a purchased power agreement between an independent merchant generator and the host utility. Assessed the economic and reliability impacts and all contract terms for reasonableness.
108. Assisted in the development of an energy strategy for a large Midwest manufacturing facility with on-site generation. Reviewed electric restructuring rules, electric rate availability, purchase & sale options, and operational capability to determine the least cost approach to maximizing the value of the on-site generation.
109. Assisted in the review of the impact of a major transmission upgrade in Northern New England.
110. Negotiated a new interconnection agreement for a large hotel in Northeastern Massachusetts.

SELECTED EXPERIENCE – NSTAR ELECTRIC & GAS

President & COO of NSTAR Unregulated Subsidiaries

Concurrently served as President and COO of three unregulated NSTAR subsidiaries: Advanced Energy Systems, Inc., NSTAR Steam Corporation, and NSTAR Communications, Inc.

Advanced Energy Systems, Inc.

- Responsible for all aspects of this unregulated business, a large merchant cogeneration facility in Eastern Massachusetts that sold electricity, steam, and chilled water. Duties included management, operations, finance and accounting, sales, and P&L responsibility.

NSTAR Steam Corporation

- Responsible for all aspects of this unregulated business, a district energy system in Eastern Massachusetts that sold steam for heating, cooling, and process loads. Duties included management, operations, finance and accounting, sales, and P&L responsibility.

NSTAR Communications, Inc.

- Responsible for all aspects of this unregulated business, a start-up provider of telecommunications services in Eastern Massachusetts. Duties included management, operations, finance and accounting, sales, and P&L responsibility.
- Established a joint venture with RCN to deliver a bundled package of voice, video, and data services to residential and business customers. Negotiated complex indefeasible-right-to-use and stock conversion agreements.
- Installed 2,800 miles of network in three years. Built capacity for 230,000 residential and 500 major enterprise customers.
- Testified before the Congress of the United States on increasing competition under the Telecommunications Act of 1996.

VP, Technology, Research, & Development, Boston Edison Company

- Responsible for identifying, evaluating, and deploying technological innovation at every level of the business.
- Reviewed Electric Power Research Institute (EPRI), national laboratories, vendor, and manufacturer R&D sources. Assessed state-of-the-art electro-technologies, from nuclear power plant operations to energy conservation.

VP of Marketing, Boston Edison Company

- Promoted and sold residential and commercial energy-efficiency products and customer service programs.
- Conducted market research to develop an energy-usage profile. Designed a variable time-of-use pricing structure, significantly reducing on-peak utilization for residential and commercial customers.
- Designed and marketed energy-efficiency programs.
- Established new distribution channels. Negotiated agreements with major contractors, retailers, and state and federal agencies to promote new energy-efficient electro-technologies.

Vice President, Energy Planning, Boston Edison Company

- Responsible for energy-usage forecasting, pricing, contract negotiations, and small power and cogeneration activities. Directed fuel and power purchases
- Implemented an integrated, least-cost resource planning process. Created Boston Edison's first state-approved long-range plan.
- Assessed non-traditional supply sources, developed conservation and load-management programs, and purchased from cogeneration and small power-production plants.
- Negotiated and administered over 200 transmission and purchased power contracts.
- Represented the company with external agencies. Served on the Power Planning Committee of the New England Power Pool.
- Testified before federal and state regulatory agencies.

EMPLOYMENT HISTORY

La Capra Associates, Inc. Principal Consultant	Boston, MA	2004 – present
Advanced Energy Systems, Inc. President and COO	Boston, MA	2001-2003
NSTAR Steam Corporation President and COO	Cambridge, MA	2001-2003
NSTAR Communications, Inc. President and COO		1995-2003
Boston Edison Company	Boston, MA	

VP, Technology, Research, & Development	1993-1995
VP, Marketing, Boston Edison Company	1991-1993
Vice President, Energy Planning, Boston Edison Company	1987-1991
Manager, Supply & Demand Planning	1984-1987
Manager, Fuel Regulation & Performance	1982-1984
Assistant to Senior Vice President, Fossil Power Plants	1981-1982
Division Head, Information Resources	1978-1981
Senior Engineer, Information Resource Division	1977-1978
Assistant to VP, Steam Operations	1976-1977
Electrical Engineer, Research & Planning Department	1973-1976

EDUCATION

Boston College		Boston, MA
Masters in Business Administration	1982	
Northeastern University		Boston, MA
Masters in Science, Electrical Engineering	1974	
Northeastern University		Boston, MA
Bachelors in Science, Electrical Engineering	1973	

PROFESSIONAL AFFILIATIONS

Director, NSTAR Communications, Inc.	1997-2003
Director, Advanced Energy Systems, Inc.	2001-2003
Director, Neuco, Inc.	2001-2003
Director, United Telecom Council	1999-2003
Head, Business Development Division, United Telecom Council	2000-2003
Elected Commissioner – Reading Municipal Light Board	2005-2012
Registered Professional Electrical Engineer in Massachusetts	

Laura Kier

Analyst

Laura Kier recently joined La Capra Associates, bringing engineering, energy efficiency, and energy conversion experience. Her work with La Capra Associates includes being an integral part of the Market Analytics team responsible for maintaining and running La Capra Associates' wholesale electricity market model. She provides research and analysis for a variety of projects for the firm; and has been involved in a project looking at steam rates for regulated utilities providing municipal steam.

Ms. Kier has B.E. degree in Engineering, Energy Conversion and Optimization, and a B.A. degree in Engineering Sciences and Environmental Policy.

RELEVANT EXPERIENCE

Market Modeling

- As part of a LED Lighting Project, built Stella model to explain the light emitting diode (LED) industry's system dynamics and predict its behavior given assumptions about technological development, consumer preferences, and barriers to market penetration.

Energy Efficiency and Systems

- As part of an "Icehouse" project:
 - Designed passive refrigerator for the Craftsbury Outdoor Center, a Vermont resort and athletic training Winter 2013 facility, serving 300 meals daily to guests and residents.
 - Evaluated various sustainable cooling techniques and determined that the melting of less than 600 ft. of ice could sustain a 40°F design temperature and offset a 4.5 MMBtu summer heat load.
 - Conceptualized design elements such as automated fan heat exchanger with aluminum interior barrier and 5 gallon dry wall bucket ice containers, resulting in a total system IRR of 14% over 15 years.
- Explored potential of nuclear power to deliver both electricity and steam heating in order to increase thermal efficiency and economic attractiveness of nuclear power plants.
- Conducted case study and Aspen model to economically, energetically and legally compare retrofitting large nuclear power station and smaller, fast neutron fourth generation reactor "Gen4" with combined heat and power (CHP).

Renewables

- Examined and modeled how cash flow and revenue requirements change over time in various alternative plans for a large hydro plant. ??? (Manitoba)
- Performed team-based valuation analysis of First Solar and presented results to corporate executives.

EMPLOYMENT HISTORY**La Capra Associates**

Boston, MA

*Analyst**September 2013 – present***Navigant Consulting Energy Practice**

Washington, D.C.

*Associate**Summer 2012*

- Supported Energy Efficiency and Policy Analysis group on Department of Energy (DOE) contract to create national efficiency standards for household appliances.
- Developed testing database and automated reports for DOE Assessment and EnergySTAR, and researched cost-cutting measures to reduce DOE's economic burden of the program.

Sherwood Design Engineers

New York, NY

*Engineering and Research Intern**Summer 2011*

- Advised architecture firm on sustainable infrastructure facilities for city model at Museum of Modern Art exhibit February 2012.
- Researched water harvesting and treatment practices to provide engineering consulting to Silicon Valley company, and collaborated with engineers on other sustainable development projects.

Architecture for Humanity

San Francisco, CA

*DPCS Intern**Winter 2011*

- Received \$4,000 grant from Dartmouth Partners in Community Service to intern at nonprofit firm.
- Led team of volunteers to build greenhouse for urban farming project, and contributed to other local projects including interactive kiosks for downtown neighborhood and outdoor classroom.

EDUCATION

Thayer School of Engineering at Dartmouth Hanover, NH
Bachelor of Engineering, Energy Conversion and Optimization 2013

Dartmouth College Hanover, NH
Bachelor of Arts, Engineering Sciences and Environmental Policy 2012

Tuck School of Business at Dartmouth Hanover, NH
Participated in highly selective 30-day program taught by MBA faculty, providing in-depth introduction to accounting, finance, microeconomics, marketing, and strategy. Summer 2013

PROFESSIONAL TRAINING & SKILLS

Microsoft Office and Access; Matlab; SolidWorks; MiniTab; Stella; Basic Aspen; Vectorworks; Basic Rhinoceros; Basic Lathe/Drill Press Skills; Proficient in Spanish

AWARDS and ASSOCIATIONS

Student Representative on Ethics Committee on Standards (Dartmouth College)

Recipient of "Class of 1866 Prize for Oratory"

James O. Friedmann Presidential Scholar

Dan Koehler

Consultant

Dan Koehler joined La Capra Associates as an Analyst in early 2010. He is an integral part of the firm's Renewable Energy Policy and Markets team; and is a member of our Market Analytics team responsible for maintaining and running La Capra Associates' wholesale electricity market model. Mr. Koehler also provides research and analysis support for various power markets and utility regulation projects.

Mr. Koehler holds a B.A. in Applied Mathematics with a focus on Economics from Yale University, and received his Master's Degree in Public Policy & Management from the University of Southern Maine.

SELECTED PROFESSIONAL EXPERIENCE

- As Director of a not-for-profit community organization for six years, planned and facilitated hundreds of meetings, training workshops, and planning sessions for community leaders in Central Maine.
- Maintains and runs La Capra Associates' Electric Market Model which is used to support the analysis for numerous client projects. These duties include monitoring and updating New England and New York demand forecasts, generation additions and retirements, and fuel price forecasts; as well as reviewing and benchmarking model results.
- Developed process improvement strategies in wholesale electricity market modeling for a large Canadian independent power producer. In particular, assisted the client in improving the representation of NYISO in AURORAxmp, with a focus on improved output benchmarking tools, supply stack representation and fuel forecasts. Also assisted the client with programming AURORAxmp to conduct Monte Carlo risk analysis with multiple correlated continuous and discrete risk variables.
- Spearheaded a collaborative effort by a group of academic and government researchers to model biomass electricity potential in North Carolina.
- Assisted with the preparation of an appraisal critique and alternative asset valuations for a natural gas-fired generation unit in Rhode Island and several hydroelectric assets in Northern New England.
- Provided analysis, expert witness preparation, and litigation support in two arbitration cases concerning fair market value of hydroelectric generation assets in Maine and Vermont.
- Analyzed applications for approval of more than \$1 billion in environmental retrofits of coal-fired generation plants in North Dakota and Arkansas, and assisted with developing expert testimony in front of the North Dakota Public Service Commission and the Arkansas Public Service Commission.
- Evaluated the Integrated Resource Plan of a North Dakota utility and helped prepare expert testimony before the Public Service Commission on the utility's application to build a new generation unit.
- Evaluated application filings and drafted testimony for presentation to the Wisconsin Public Service Commission on a proposed 345kV transmission project and a quarter billion dollar distribution system upgrade.
- Participated on a team that modeled, analyzed and prepared a report on the current and potential impact of a Renewable Energy and Energy Efficiency Portfolio Standard in North Carolina.
- Manages database for existing and proposed New England and New York renewable energy projects.
- Maintains specialized knowledge of New England renewable regulations including the Massachusetts Green Communities Act (2008) and state RPS rules.

- Monitors and maintains historical REC prices and futures price curves for New England, and produces periodic memo on the status of New England REC markets for clients.
- Monitors new and developing environmental regulations affecting electric generating units – particularly the Cross-State Air Pollution Rule (CSAPR), Regional Haze Rule, Mercury and Air Toxics Standards (MATS), and greenhouse gas standards – and has provided consultation to clients on potential impacts.
- Analyzed the application of a Utah utility for approval of a significant energy resource addition, and assisted with drafting testimony on behalf of the Division of Public Utilities.
- Analyzed the merger application of Duke and Progress, and assisted with drafting testimony on behalf of environmental organizations in North Carolina and South Carolina Commission proceedings.
- Assisted with developing and drafting Integrated Resource Plans for two Vermont utilities, including producing a multivariate regression analysis to forecast load.
- Assisted with analysis and testimony on behalf of Public Staff of the Arkansas Public Service Commission in the case of a large utility deciding which RTO to join.
- Worked with a team to develop testimony in several electric rate cases on behalf of the Wisconsin Citizens Utility Board.
- Assisted the Utah Division of Public Utilities with the analysis of capital expenditures in a major utility's general rate case, including a novel sampling approach to generalize findings, and assisted with preparation of expert testimony.
- Assisted the Utah Division of Public Utilities in a review of net power cost reconciliation, with particular focus on the prudence of natural gas and electric hedging transactions.

RECENT EMPLOYMENT HISTORY

La Capra Associates, Inc.	Boston, MA
<i>Consultant</i>	2013 – Present
<i>Analyst</i>	2010 – 2013
Kennebec Valley Organization	Waterville, ME
<i>Founding Director</i>	2003 – 2009
United States Peace Corps	Paraguay
<i>Volunteer</i>	2000 – 2002

EDUCATION

University of Southern Maine	Portland, ME
<i>Master of Public Policy and Management</i>	2011
Yale University	New Haven, CT
<i>BA with Major in Applied Mathematics</i>	2000

AWARDS

University of Southern Maine
Best Capstone Project Award for “Discrete Choice Modeling Application to E-ZPass Use”
Invited into Phi Kappa Phi (top 10%) and Golden Key Honor Societies

Yale University
Cum Laude
Distinction in Major for Senior Project, “An Econometric Model of School Choice”
Lawton Calhoun Cup

Dimitrios Kordonis

Consultant

Dimitrios Kordonis recently joined La Capra Associates as a Consultant, bringing over six years of experience in market operations, financial and power system analyses, and project management. At La Capra Associates, he is contributing to a variety of areas and projects which include transmission, energy markets, renewable energy, market analytics, and stakeholder processes. During his six years at ISO-New England, Mr. Kordonis worked as a market operations analyst where he was responsible for performing financial and power system analyses, preparing monthly management reports and administering financial and engineering resources for various projects, including the implementation of Forward Capacity Market (FCM) and Demand Response. He also has experience with risk quantification and collateralization of Financial Transmission Rights. In addition, he spent significant time working for a market participant assisting in various processes interfacing with PJM, ERCOT and CAISO.

Mr. Kordonis has an Electrical Engineering degree from Rutgers and an MBA from the University of Massachusetts, in addition to serving in the U.S. Navy for four years as a Gas Systems Engineer.

PROFESSIONAL EXPERIENCE

Procurement/Market Analysis

- Conducted risk quantification analyses to support energy and congestion market enhancements.
- Evaluated projections of Locational Marginal Prices (LMP), Financial Transmission Rights/Congestion Revenue Rights (FTR/CRR) Clearing Prices, Reserve Market Clearing Prices and FCM Clearing Prices using market simulation tools and analyzed the results.
- Key contributor to Wind integration, demand response integration and Long Term Financial Transmission Rights integration efforts at ISO-NE.
- Contributed subject matter expert content for published reports circulated by ISO-NE to Market Participants describing strategic market initiatives and potential issues.
- Identified new areas of enhancements to improve asset management in various de-regulated markets that include PJM, MISO and ERCOT.
- Contributed in the valuation of assets (Coal and Wind) that included financial modeling, forecasting, and market analysis.
- Assisted in evaluating and submitting bids to various markets in the US. This included bids for Day Ahead and Real Time markets, Reserve markets, Financial Transmission Rights and Capacity markets.

Transmission/Planning

- Performed short term load flow transmission studies to assess system reliability to support NEPOOL and ISO-NE requests.
- Performed daily economic impact analysis of short term transmission outages (TARA) to minimize economic impact in accordance with the ISO's market rules and operating procedures.
- Supported and assisted in special studies to determine reliable operating limits for internal and external interfaces to ISO - NE.

- Assessed technical thermal analysis of transmission and generation outages focused on specific asset or transmission element.
- Implemented NERC CIP program and conducted NERC risk based methodology assessment for all Edison Mission Energy's critical assets and critical cyber assets.

Market Modeling

- Improved the methodology used for the development of the Financial Transmission Rights assumptions for ISO-NE that resulted in congestion revenue adequacy for multiple years.
- Assisted in various enhancements to ISO- NE's simultaneous feasibility test (SFT) and Scheduling, Pricing and Dispatch (SPD), that included introduction of the Combined Cycle generators, Wind assets and Demand Response in the Day Ahead and Real Time Markets.
- Conducted multiple Forward Reserve Market runs to support new market developments and requests.

Renewable Energy

- Contributed to Wind integration at ISO-NE. This included market and operations enhancements in addition to market testing and operator training.
- Assisted in the valuation of new Wind assets in the MISO and ERCOT markets.
- Implemented real time dispatch and curtailment logic at Edison Mission Energy's Big Sky (PJM Market) and Goat Wind (ERCOT) assets.

Stakeholder process

- Assisted in presenting enhancements to the Financial Transmission Rights market at the ISO-NE's market committee.
- Conducted data analyses and evaluations to correctly implement proposed Market Rules for the Forward Reserve and Forward Capacity markets.
- Attended multiple ISO-NE Market Committee meetings as a subject matter expert and responded to market participant questions related to proposed market rule changes.

EMPLOYMENT HISTORY

La Capra Associates, Inc.

Consultant

Boston, MA

September 2013 – Present

Edison Mission Marketing & Trading

Applications Analyst

Boston, MA

October 2012 – September 2013

ISO-New England

Senior Market Operations Analyst

Holyoke, MA

January 2012 - September 2012

Market Operations Analyst

February 2008 – January 2012

Associate Market Operations Analyst

November 2007 – January 2008

EDUCATION

University of Massachusetts <i>Masters of Business Administration</i>	Amherst, MA 2011
Rutgers School of Engineering <i>M.S., Electrical and Computer Engineering</i>	New Brunswick, NJ 2007
<i>B.S., Electrical and Computer Engineering</i> <i>Minor in Economics</i>	2002 - 2005
United States Navy (USS Monterey CG-61) <i>Gas Systems Engineer and Work Center Supervisor</i>	Norfolk, VA September 1998 – September 2002

PROFESSIONAL TRAINING & SKILLS

Programming/Languages: C++, PL/SQL, Matlab, PSPICE, Oracle Discoverer

Engineering Programs: ALSTOM PowerFlow and Contingency Analysis, SCADA, EMS (Energy Management System), PowerWorld, TARA, P/SEE

ACHIEVEMENTS, PRESENTATIONS & CONFERENCES

Achievements

Member of IEEE since 2004

Received three Navy Achievement Medals (1998-2002)

Presentations & Conferences

Speaker at AREVA Winter Conference, Seattle, WA, (2009) — “Challenges of Contingency Analysis in the Day and Real Time Markets”

Presenter at Wholesale Electricity Markets (WEM 201) course at ISO-NE Section “Unit Commitment and Dispatch”



Jenny Martos

Analyst

Jenny Martos recently joined La Capra Associates, bringing energy, environmental markets, and nuclear operations experience. Her work with La Capra Associates includes being an integral part of the Market Analytics team responsible for maintaining and running La Capra Associates' wholesale electricity market model. She is involved in power supply management and procurement for various clients in the Northeast which includes managing load in the ISO New England Standard Market Design (SMD) system. She also provides research and analysis for a variety of projects for the firm.

Ms. Martos has an M.S. and B.S. in Nuclear Engineering, and a B.S degree in Business and Management. She has also received advanced certifications in Six Sigma business management strategy which uses a set of quality management methods to reduce errors in business practices.

RELEVANT EXPERIENCE

Power Procurement and Energy Markets

- Assist in power supply management for Massachusetts Port Authority in market participation in the ISO-NE markets. Review load and resource charges and assist in monthly reporting functions. Bid load into ISO-NE Standard Market Design (SMD) system daily and manage file data downloads.
- Participated in power supply procurement on behalf of Amtrak for its load as part of a multi-year strategy that has saved Amtrak millions of dollars supplying its electrified Northeast Corridor train and station service, while stabilizing costs.
- Participated in providing power procurement support for Narragansett Bay Commission.
- Assist in power supply management for Woodsville Water and Light Department. Review load and resource charges and assist in monthly reporting functions. Manage and review load and resource charges. Provide bill verification, annual budgeting, and monthly reporting functions.

Cost Analysis

- Performed life time cost analysis on enriched uranium fuels for a fleet of nuclear reactors. Examined the financial benefit of extending operation of the fuel cycle as opposed to enriching the nuclear fuels. Considered different scenarios in a sensitivity analysis for different price points of uranium fuel, transportation, and enrichment levels.
- Completed individual semester long project on the economics of building new nuclear reactors in the United States. Examined the financial cost escalation over

the last decade for new reactors and compared price of nuclear-generated electricity to other forms of generation. Assessed feasibility of building new reactors in regulated and unregulated markets and effect of implementing a carbon tax.

Nuclear Operations

- Examined the feasibility of operation of next generation high temperature gas reactors using pebble-bed fuels. Tested variants of nuclear fuels with different material compositions at operating conditions and performed statistical analysis quality control and material property research in order to assess end of life fuel degradation.
- Examined the Nuclear Regulatory Commission licensing procedure for building a small modular reactor at the San Onofre Generation site. Considered current regulatory requirements and design basis accidents as well as proposed mitigation by use of passive safety systems. Cumulated in a preliminary safety analysis report of the potential location of a NuScale small modular reactor at San Onofre.

EMPLOYMENT HISTORY

La Capra Associates

Boston, MA

Analyst

2012 – present

University of California, Nuclear Materials Laboratory

Berkeley, CA

Research Assistant

Oct. 2011 – May 2012

- Performed data analysis and experimental research on next-generation nuclear fuels

Idaho National Laboratory, Center for Advanced Energy Studies

Idaho Falls, ID

Researcher

May 2011 – Aug. 2011

- Performed experimental research on nuclear fuel materials

Lawrence Livermore National Laboratory

Livermore, CA

High Energy Density Physics Summer Student Program

Jun. 2010 – Aug. 2010

- Generated benchmark results for a stochastic problem using various modeling techniques

EMPLOYMENT HISTORY – *cont'd.***Rensselaer Polytechnic Institute**

Troy, NY

*Researcher, Undergraduate Research Program**Aug. 2009 – Dec. 2009*

- Modeling of fuel particles for next generation high temperature pebble-bed gas reactors

Dominion – Millstone Nuclear Power Plant

Waterford, CT

*Reactor Engineering Intern**May 2009 – Jul. 2009*

- Assisted in providing reactivity plans and supporting operations
- Created Quality Assurance software document file for Millstone Unit 3 plant calorimetric

Dominion – Innsbrook Technical Center

Glen Allen, VA

*Nuclear Core Design Intern**May 2008 – Aug. 2008*

- Performed life time cost analysis on enriched uranium fuels
- Performed monthly core tracking calculations for Dominion's nuclear fleet

EDUCATION**University of California, Berkeley**

Berkeley, CA

*Master's of Science: Nuclear Engineering**2012***Rensselaer Polytechnic Institute**

Troy, NY

*Bachelor of Science: Nuclear Engineering**2010**Bachelor of Science: Business and Management***PROFESSIONAL TRAINING & SKILLS**

Minitab, C++, Python, Linux/Unix, RELAP5, Origin, Monte Carlo N- Particle (MCNP), Mercury Monte Carlo Code, Six Sigma Blue Belt Certification, and Six Sigma Advanced Blue Belt Certification

AWARDS and ASSOCIATIONS

Rensselaer Polytechnic Institute

- Inducted into RPI Epsilon Delta Sigma, Management Honor Society, and RPI Alpha Nu Sigma, Nuclear Engineering Honor Society

American Nuclear Society

- RPI Institute Relations Co-Chair
- RPI Social Chair

Nuclear Forensics Graduate Fellowship

AAUW Selected Professions Scholarship

Rensselaer Polytechnic Leadership Award

National Academy for Nuclear Training Scholarship

Dominion Diversity Scholarship

American Nuclear Society Decommissioning, Decontamination, and Reutilization Graduate Scholarship

Mary Neal

Consultant

Mary Neal, one of our Consultants, joined La Capra Associates in the summer of 2009, bringing energy modeling and energy policy research experience. Her work at La Capra Associates includes analysis of electric utility plans for the acquisition and building of new resources, as well as capital upgrades to existing units. Ms. Neal has also provided extensive analysis of electric utility cost allocation models. Other important tasks include electric and gas utility rate design and electric utility integrated resource planning. Currently, Ms. Neal is the lead modeler for La Capra Associates' market analytics team responsible for maintaining its AURORAxmp Northeast electric market model. Prior to joining the firm, she designed gas turbine combustion systems for a gas turbine manufacturer. Ms. Neal holds a B.S. degree in Mechanical Engineering from the University of California, Davis and graduated with an M.A. in Energy and Environmental Analysis from Boston University in early 2010.

PROFESSIONAL EXPERIENCE

Electric Utility Planning

- Testified on behalf of the Nova Scotia Small Business Advocate as part of a proceeding to review Nova Scotia Power Inc.'s 2012 Annual Capital Expenditure Plan and on behalf of the Citizens Utility Board of Wisconsin as part of a 2012 Madison Gas and Electric rate case proceeding.
- Performs and reviews utility economic evaluations of investment decisions regarding new capacity, capacity acquisitions, and retrofits to existing units.
- Assistant project manager for a review of Entergy Arkansas's strategic planning for post-System Agreement operation on behalf of the General Staff of the Arkansas Public Service Commission.
- Key contributor to the research and writing efforts in creation of the 2010 Comprehensive Plan for the Procurement of Energy Resources for the state of Connecticut, including authoring technical papers on combined heat and power (CHP), nuclear power, and emerging technologies.
- Evaluates projections of fuel consumption and costs using market simulation tools.
- Provides research for utility load and sales projections, including load reductions from demand response and energy efficiency as well as load from electric vehicles.

Market Modeling

- Lead modeler for the team that maintains La Capra Associates' AURORAxmp electricity market model.
- Developed CHP technology and size optimization model.
- Analyzes and develops utility simulations of energy market operations, including economic dispatch using both deterministic and stochastic methods.
- Understands details of energy markets in ISO-NE, NYISO, PJM, SPP and MISO.
- Possesses a working knowledge of other energy market models, including PROMOD and EGEAS.

Rates

- Provided analysis of electric and gas utility allocated COS models and/or rate design in regulatory proceedings in five states.

- Assisted in development of an electronic COS model for Vermont electric municipals and cooperatives.
- Performs econometric and other analyses of utility capital investment to calculate marginal cost.

EMPLOYMENT HISTORY

La Capra Associates, Inc.
Consultant
Analyst

Boston, MA
June 2010 – Present
June 2009 – May 2010

Cambridge Housing Authority
Energy Analyst (Internship)

Cambridge, MA
September 2008 – May 2009

- Performed time series econometric and engineering analyses of energy use in public housing projects to reduce consumption and cost

Solar Turbines Inc.
Engineer
Staff Engineer
Associate Engineer

San Diego, CA
August 2008
April 2006 – August 2008
November 2005 – April 2006

- Designed dry low-emission gas turbine combustion systems for Mars SoLoNOx engines.
- Led the SoLoNOx combustion liner implementation team.
- Designed fuel injectors for landfill gas fuel and aftermarket retrofit applications.

EDUCATION

Boston University
M.A., Energy and Environmental Analysis

Boston, MA
2010

University of California Davis
B.S., Mechanical Engineering

Davis, CA
2005

University of Canterbury
Energy and Environmental Engineering Study Abroad Program

Christchurch, New Zealand
Summer 2004

PROFESSIONAL TRAINING & SKILLS

Time Series Econometrics, Environmental System Modeling, Six Sigma Green Belt, Microsoft Excel VBA, SQL, MATLAB, MathCAD, ProE, Minitab, ArcGIS, RATS

HONORS AND AWARDS

University of California Davis

- College of Engineering, *M.S. Ghausi Medal*
- Mechanical Engineering, *Departmental Citation of Excellence*



DANIEL E. PEACO

La Capra Associates

President

Daniel Peaco is an electric industry planning specialist with more than 30 years of experience in power markets and marketing, strategic planning, pricing and price forecasting, power procurement and contracts, and power systems planning. Mr. Peaco has significant experience as an expert witness and as an advisor to senior utility managers and public policy officials. His consulting practice has included a range of engagements relating to integrated resource planning, competitive electric markets and industry restructuring, including generation asset valuation, strategic planning, competitive market formation and pricing, stranded cost assessment and mitigation, power market analysis of prices and supply requirements, power contract analysis, and power procurement practices. In addition to his tenure at La Capra Associates, he has held management and planning positions in power supply planning at Central Maine Power, CMP International Consultants, Pacific Gas & Electric, and the Massachusetts Energy Facilities Siting Council.

EMPLOYMENT HISTORY

La Capra Associates	Boston, MA
<i>President</i>	<i>2002-current</i>
<i>Managing Director</i>	<i>1996-2002</i>
Central Maine Power Company	Augusta, ME
<i>Manager, Industrial Marketing and Economic Development</i>	<i>1995-96</i>
<i>Principal, CMP International Consultants</i>	<i>1993-95</i>
<i>Director, Power Supply Planning</i>	<i>1987-93</i>
<i>Power Supply Planning Analyst</i>	<i>1986-87</i>
Pacific Gas & Electric Company	San Francisco, CA
<i>Power Supply Planning Analyst</i>	<i>1985-86</i>
<i>Hydropower Planning Analyst</i>	<i>1983-84</i>
<i>Cogeneration Contracts Analyst</i>	<i>1981-82</i>
Massachusetts Energy Facilities Siting Council	Boston, MA
<i>Planning Engineer</i>	<i>1978-79</i>

EDUCATION

Thayer School of Engineering, Dartmouth College	Hanover, NH
<i>M.S. in Engineering Sciences, Resource Systems and Policy Design</i>	<i>1981</i>
Massachusetts Institute of Technology	Cambridge, MA
<i>B.S. in Civil Engineering, Water Resource Systems</i>	<i>1977</i>

REPORTS AND PRESENTATIONS

Need for and Alternative To (NFAT) Review of Manitoba Hydro's Proposal for the Keeyask and Conawapa Generating Stations, Initial Expert Analysis Report prepared for the Manitoba Public Utilities Board. January 24, 2014. Lead Consultant and Principal Author.

Evaluation of the Transaction to Transfer the Entergy Corp. Transmission Business to ITC Holdings, Inc., Initial Report prepared for the General Staff of the Arkansas Public Service Commission. April 19, 2013. Lead Consultant and Principal Author.

Regarding Tri-State G&T's Cost to Serve Its Nebraska Loads and the Nebraska Power Supply Issues Group Loads, prepared for the Nebraska Power Supply Issues Group, two public power districts and two member-owned electric utilities in Western Nebraska. December 2012. Lead Consultant and Principal Author.

Independent Valuation Opinion for the Vernon Station in the Town of Hinsdale, NH, prepared for the Transcanada Hydro regarding the value of a 32 MW hydropower asset. November 2012. Lead Consultant and Principal Author.

Independent Valuation Opinion for the Comerford and McIndoes Stations in the Town of Monroe, NH, prepared for the Transcanada Hydro regarding the value of 179 MW hydropower assets. November 2012. Lead Consultant and Principal Author.

Independent Opinion Regarding the Market Value of Brassua Hydro LP Assets, prepared for the Owners of Brassua Dam regarding the value of a 4 MW hydropower asset. November 2012. Lead Consultant and Principal Author.

Independent Opinion Regarding Amortization Reserve of Brassua Hydro LP, prepared for the Owners of Brassua Dam regarding the amortization reserve value of a 4 MW hydropower asset. November 2012. Lead Consultant and Principal Author.

Regional Framework for Non-Transmission Alternatives, Report prepared for the New England States Committee on Electricity. October 2012. Lead Consultant and Principal Author.

Renewable Energy and Energy Efficiency Portfolio Standards(REPS) And Sustainable Energy in North Carolina, Lessons from the 2011 Energy Policy Committee Study, presentation to the 9th Annual Sustainable Energy Conference, Raleigh, North Carolina April 20, 2012.

Transmission Planning for the Next Generation, Some Implications for Generators in the New England Region of FERC Order 1000, presentation to the Connecticut Power and Energy Society's Energy, Environment, and Economic Development Conference, Cromwell, Connecticut March 14, 2012.

Entergy Arkansas, Inc.'s Withdrawal from the Entergy System Agreement, Response to EAI's Analysis of All Strategic Options, Supplemental Initial Report prepared for the General Staff of the Arkansas Public Service Commission. July 12, 2011. Lead Consultant and Principal Author.

North Carolina's Renewable Energy Policy, A Look at REPS Compliance To Date, Resource Options for Future Compliance, and Strategies to Advance Core Objectives, prepared for the North Carolina Energy Policy Council. June 2011. Lead Consultant and Co-Author.

Energy Policy Implementation, Framework Overview: Paying for the Policies, presentation to the NECA/CPES 18th Annual New England Energy Conference, Groton, Connecticut, May 18, 2011.

Entergy Arkansas, Inc.'s Withdrawal from the Entergy System Agreement, Initial Report prepared for the General Staff of the Arkansas Public Service Commission. February 11, 2011. Lead Consultant and Principal Author.

Non-Transmission Alternatives Assessment for the Lewiston-Auburn Area, Report for Central Maine Power. August 27, 2010. Co-Author.

Emerging Regional Energy Issues, How RPS Requirements will Affect Vermont's Energy Future, presentation to the Vermont's Renewable Energy Future Conference, Burlington, Vermont October 1, 2010.

2010 Comprehensive Plan for the Procurement of Energy Resources, Report prepared for the Connecticut Energy Advisory Board. April 27, 2010. Lead Consultant and Principal Author.

Phase I Report: Assessment of Energy Supply Options for the Town of Millinocket, report to the Town of Millinocket, Maine. December 18, 2009. Lead Consultant and Principal Author.

2009 Comprehensive Plan for the Procurement of Energy Resources, Report prepared for the Connecticut Energy Advisory Board. May 1, 2009. Lead Consultant and Principal Author.

Evaluation of the Grid Solar Proposal, Review of the Economics of the Proposal as an Alternative to the Maine Power Reliability Program, Report prepared for Central Maine Power. April 3, 2009. Lead Consultant and Principal Author.

An Analysis of the Connecticut Light and Power Company's Proposed Greater Springfield Reliability Project and Manchester to Meekville Project and the Non-Transmission Project Proposed as Alternatives, Report prepared for the Connecticut Energy Advisory Board. February 17, 2009. Lead Consultant and Principal Author.

Preparing A State-Centric IRP in a Multi-State Power Market, presentation to the EUCI Conference on Resource and Supply Planning, Scottsdale, Arizona, February 11, 2009.

Resource Considerations of Transmission Planning, half-day workshop presented to the EUCI Conference on Resource and Supply Planning, Scottsdale, Arizona, February 11, 2009.

2008 Comprehensive Plan for the Procurement of Energy Resources, Report prepared for the Connecticut Energy Advisory Board. August 1, 2008. Lead Consultant and Principal Author.

Maine Power Reliability Project: Non-Transmission Alternatives Assessment and Economic Evaluation, Report for Central Maine Power. June 30, 2008. Lead Consultant and Principal Author.

Maine Power Connection: Locational Marginal Price and Production Cost Implications in Maine and New England, Report for Central Maine Power and Maine Public Service Company. June 30, 2008. Lead Consultant and Principal Author.

Impact of Aroostook Wind Energy on New England Renewable Energy Certificate Market, Report for Horizon Wind Energy. June 25, 2008. Lead Consultant.

Initial Review of Integrated Resource Plan for Connecticut, Report for the Connecticut Energy Advisory Board. January 28, 2008. Lead Consultant and Principal Author.

Connecticut's Long-Term Electric Capacity Requirements, Report of the Connecticut Energy Advisory Board. April 7, 2006. Lead Consultant and Principal Author.

Technical Audit – Phase III: Review of Increase in Fuel Component of Power Budget FY 2007 relative to FY 2006, prepared for the New Brunswick Power Distribution and Customer Service Corp., October 5, 2005. Lead Consultant and Principal Author.

Preliminary Assessment of Connecticut's Electric Supply and Demand: Near Term Requirements for Reliability and Mitigation of Federally Mandated Congestion Charges, The Connecticut Energy Advisory Board. September 2, 2005. Lead Consultant and Principal Author.

Technical Audit – Phase II: Review of Increase in Fuel Component of Power Budget FY 2006 relative to FY 2005, prepared for the New Brunswick Power Distribution and Customer Service Corp., July 7, 2005. Lead Consultant and Principal Author.

Technical Audit: Purchased Power Budget April 2005 – March 2006, prepared for the New Brunswick Power Distribution and Customer Service Corp., May 18, 2005. Lead Consultant and Principal Author.

Retail Choice Study: Issues and Options for Electric Generation Service, The Belmont Electricity Supply Study Committee, Belmont, Massachusetts. June 2, 2004. Lead Consultant and Principal Author.

California Energy Markets: The State's Position Has Improved, Due to Efforts by the Department of Water Resources and Other Factors, but Cost Issues and Legal Challenges Continue, California Bureau of State Audits, April 2, 2003. Lead Consultant and a Principal Author.

California Energy Markets: Pressures Have Eased, but Cost Risks Remain, California Bureau of State Audits, December 21, 2001. Lead Consultant and a Principal Author.

Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas, Arkansas General Staff's Report, In The Matter of a Progress Report to the Arkansas General Assembly on the Development of Competition in Electric Markets and the Impact, if any, on Retail Consumers, Docket No. 00-190-U, September 4, 2001. Principal Author.

Preliminary Market Value Assessment of PP&L Maine Hydroelectric Plants, August 2001. Proprietary report prepared for American Rivers, the Atlantic Salmon Federation, the Natural Resources Council of Maine, the Penobscot Indian Nation, and Trout Unlimited. Principal Author.

Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas, Arkansas General Staff's Report, In The Matter of a Progress Report to the Arkansas General Assembly on the Development of Competition in Electric Markets and the Impact, if any, on Retail Consumers, Docket No. 00-190-U, September 29, 2000. Principal Author.

Wholesale Market Development: Timing and Issues Survey of Activity in Other Regions, FERC Initiatives, In The Matter of a Progress Report to the Arkansas General Assembly on the Development of Competition in Electric Markets and the Impact, if any, on Retail Consumers, Docket No. 00-190-U, September 29, 2000. Principal Author.

Retail Market Development: Timing and Issues Survey of Other States, In The Matter of a Progress Report to the Arkansas General Assembly on the Development of Competition in Electric Markets and the Impact, if any, on Retail Consumers, Docket No. 00-190-U, September 29, 2000. Principal Author.

The Progression toward Retail Competition in Arkansas' Neighboring States, In The Matter of a Progress Report to the Arkansas General Assembly on the Development of Competition in Electric Markets and the Impact, if any, on Retail Consumers, Docket No. 00-190-U, September 29, 2000. Principal Author.

Arkansas General Staff Proposal and Initial Comments, In The Matter of a Generic Proceeding to Establish Uniform Policies and Guidelines for a Standard Service Package, Docket No. 00-148-R, June 13, 2000. Principal Author.

Arkansas General Staff Initial Comments, In The Matter of a Generic Proceeding to Determine if Metering, Billing, and Other Services Are Competitive Services, Docket No. 00-054-U, March 31, 2000. Principal Author.

Arkansas General Staff Initial Comment and Proposed Market Power Analysis Minimum Filing Requirements, In The Matter of a Generic Proceeding to Establish Filing Requirements and Guidelines Applicable to Market Power Analyses, Docket No. 00-048-R, March 28, 2000. Contributing Author.

Vermont Electricity Prices: Regional Competitiveness Outlook; Implications of Restructuring in New England and New York, February 2000 Edition, prepared for Central Vermont Public Service. Principal Author.

Projected Retail Price of Electricity for Massachusetts Electric Company, Boston Edison Company, and Western Massachusetts Electric Company, September 1999, prepared for Massachusetts Municipal Wholesale Electric Company. Principal Author.

Comments of the Commonwealth of Massachusetts Division of Energy Resources, in the Investigation by the Department of Telecommunication and Energy into Pricing and Procurement of Default Service, July 1999 (Initial and Reply Comments). Contributing Author.

Need for Power Supply: The New England Power Pool and the State of Rhode Island, March 1999, prepared for Indeck – North Smithfield Energy Center.

Vermont Electricity Prices: Regional Competitiveness Outlook; Implications of Restructuring in Northeast States, a Report to the Working Group on Vermont's Electricity Future, November 1998, prepared for Central Vermont Public Service. Principal Author.

EXPERT TESTIMONY AND APPEARANCES

<u>Forum</u>	<u>Client</u>	<u>Topic</u>
Arkansas Public Service Commission Docket No. 12-069-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's proposed divestiture of its transmission business to ITC Holdings. Direct Testimony April 19, 2013 Surrebuttal Testimony June 7, 2013 Supplemental Testimony - Rate Mitigation Aug 15, 2013
Superior Court Windham Unit State of Vermont Docket No. 547-11-12 Wmev	TransCanada Hydro Northeast, Inc.	Expert testimony regarding the valuation of a four hydropower facilities totaling 260 MW in appeal of appraised values in the towns of Vernon, Rockingham, and Barnet VT. Valuation Report July 15, 2013
Arbitration AAA Case No. 11 198 Y 002014 12	City of Burlington, VT Burlington Electric Dept.	Expert testimony regarding the valuation of a 7 MW hydropower facility and the determination of fair value for transfer of ownership of the asset. Valuation Report June 21, 2013 Rebuttal Report July 26, 2013 Deposition Testimony September 12, 2013 Oral Testimony October 4, 2013
US District Court Colorado Civil Action No. 10-CV-02349-WJM-KMT	Nebraska Power Supply Issues Group	Expert testimony regarding Tri-State G&T cost to serve five Nebraska members. Expert Report December 31, 2012 Deposition Testimony February 27, 2013
Arbitration AAA Case No. 11 153 Y 02133 11	Owners of Brassua Dam FPL Hydro Maine LLP Madison Paper Industries Merimil Ltd Partnership	Expert testimony regarding the valuation of a 4 MW hydropower facility and the determination of amortization reserve obligations under FERC license provisions. Valuation Report November 1, 2012 Amortization Reserve Report November 1, 2012 Amortization Reserve Rebuttal November 15, 2012 Oral Testimony December 5, 2012
Burrillville Board of Review	Transcanada; Ocean States Power Holdings, Ltd..	Expert testimony regarding the valuation of a 540 MW combined cycle power plant in appeal of an appraisal conducted for the Town of Burrillville, RI. Valuation Report January 4, 2012 Oral Testimony March 1, 2012
Arkansas Public Service Commission Docket No. 10-011-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's strategic reorganization options and request for authorization to transfer control of its transmission asset to the Midwest ISO. Oral Testimony May 31, 2012 Surrebuttal Testimony April 27, 2012 Direct Testimony March 16, 2012

Burrillville Board of Review	Transcanada; Ocean States Power Holdings, Ltd..	Expert testimony regarding the valuation of a 540 MW combined cycle power plant in appeal of an appraisal conducted for the Town of Burrillville, RI.	
		Valuation Report	January 4, 2012
		Oral Testimony	March 1, 2012
Oklahoma Corporation Commission Cause No. PUD 201100186	OK Corporation Commission OK Attorney General	Testimony regarding a 60 MW Wind Energy Purchase Agreement and Cogeneration deferral Agreement proposed by Oklahoma Gas & Electric Company, addressing cost pre-approval, and a requested waiver from competitive procurement. requirements.	
		Prefiled Testimony	February 8, 2012
Arkansas Public Service Commission Docket No. 10-011-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's strategic reorganization options upon its exit from the Entergy System Agreement.	
		Oral Testimony	September 9, 2011
		Surrebuttal Testimony	August 18, 2011
		Supplemental Initial Testimony	July 12, 2011
		Initial Testimony	February 11, 2011
State Corporation Commission of the State of Kansas	The Landowner Group	Testimony regarding the application of ITC Great Plains for a siting permit for a 345-kV Transmission Line addressing project need and route selection methodology.	
		Initial Testimony	April 18, 2011
Federal Energy Regulatory Commission (FERC) RM10-23-000	Maine Public Utilities Commission, et. al.	Expert Affidavit regarding economic analysis methodology for transmission project evaluation. Provided in reply comments on the FERC Transmission Planning and Cost Allocation NOPR.	
		Affidavit	November 12, 2010
Maine Public Utilities Commission Docket No. 2008-255	Central Maine Power	Testimony regarding CMP's application for approval the Lewiston Loop 115kV Transmission Project. Testimony addressed non-transmission alternatives.	
		Oral Testimony	November 16, 2008
			December 14, 2010
		Rebuttal Testimony	November 8, 2010
			August 27, 2010
Oklahoma Corporation Commission Cause No. PUD 201000092	OK Corporation Commission OK Attorney General	Testimony regarding a 99.2 MW wind farm power purchase agreement and green energy choice tariff proposed by Public Service Company of Oklahoma, addressing cost pre-approval, resource need, and competitive procurement. requirements..	
		Prefiled Testimony	October 5, 2010
		Oral Testimony	November 3, 2010

Oklahoma Corporation Commission Cause No. PUD 201000037	Oklahoma Attorney General	Testimony regarding a 198 MW wind farm proposed by Oklahoma Gas & Electric, addressing cost pre-approval, resource need, and competitive procurement. requirements.
		Prefiled Testimony June 11, 2010
Connecticut Dept. of Public Utilities Control (DPUC) Docket No, 10-02-07	Connecticut Energy Advisory Board (CEAB)	Lead witness sponsoring the CEAB's <i>2010 Comprehensive Plan for the Procurement of Energy Resources</i> .
		Oral Testimony June 2 & 3, 2010
Georgia Public Service Commission Docket No, 31081	Georgia Public Service Commission Public Interest Advocacy Staff	Witness sponsoring testimony regarding integrated resource planning methods, renewable energy, solar PV demonstration projects, and uncertainty analysis.
		Written Testimony May 7, 2010 Oral Testimony May 18, 2010
Maine Public Utilities Commission Docket No. 2008-255	Central Maine Power	Testimony regarding CMP's application for approval \$1.5 B Maine Power Reliability Transmission Project. Testimony addressed non-transmission alternatives and economic benefits, economics of proposed solar alternative, wind energy development benefits.
		Oral Testimony October 10, 2008 November 19, 2008 December 21, 2009 February 4, 2010 Rebuttal Testimony December 4, 2009 April 3, 2009
Oklahoma Corporation Commission Cause No. PUD 200900167	Oklahoma Attorney General	Testimony regarding a 102 MW wind farm proposed by Oklahoma Gas & Electric, addressing cost pre-approval, resource need, and competitive procurement. requirements.
		Prefiled Testimony Sept 29, 2009
Oklahoma Corporation Commission Cause No. PUD 200900099	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding a power contract pre-approval and recovery of Independent Evaluator costs of Public Service Company of Oklahoma.
		Prefiled Testimony July 14, 2009
Connecticut Dept. of Public Utilities Control (DPUC) Docket No, 09-05-02	Connecticut Energy Advisory Board (CEAB)	Lead witness sponsoring the CEAB's <i>2009 Comprehensive Plan for the Procurement of Energy Resources</i> .
		Oral Testimony June 30, 2009

Connecticut Dept. of Public Utilities Control (DPUC) Docket No. 08-07-01	Connecticut Energy Advisory Board (CEAB)	Lead witness sponsoring the CEAB's <i>2008 Comprehensive Plan for the Procurement of Energy Resources</i> . This Plan is the first prepared under the State's new integrated resource planning statute.	Oral Testimony	August 28, 2008 September 22, 2008 October 3, 2008
Maine Superior Court Civil Action Docket No. cv-06-705	Worcester Energy Co., Inc.	Expert opinion regarding renewable energy and power procurement services.	Prefiled Report Oral Testimony	January 30, 2008 March 18, 2009
Massachusetts Dept. Of Telecommunications And Energy Docket No. DTE/DPU-06-60	Russell Biomass	Testimony regarding economic, reliability and environmental need for renewable power in the Massachusetts and New England in support of Russell Biomass petition for a zoning exemption.	Prefiled Testimony Oral Testimony	June 2007 October 30, 2007
Hawaii Public Utilities Commission Docket No. 04-0046	Hawaii Division of Consumer Advocacy	Testimony regarding Hawaii Electric Light Company's integrated resource plan.	Prefiled Testimony Oral Testimony	September 28, 2007 November 26, 2007
Nevada Public Utilities Commission Docket No. 06-12002	Nevada Attorney General Bureau of Consumer Protection	Testimony regarding the prudence of Sierra Pacific Power Company in its purchased power expenses for the period December 2001 through November 2002.	Prefiled Testimony	September 14, 2007
Oklahoma Corporation Commission Cause No. PUD 2005516 Cause No. PUD 2006030 Cause No. PUD 2007012	Oklahoma Attorney General	Testimony regarding a 950 MW coal-fired generation facility proposed by Public Service of Oklahoma and Oklahoma Gas & Electric, including IRP, competitive procurement, and construction financing issues.	Prefiled Testimony Rebuttal Testimony Oral Testimony	May 21, 2007 June 18, 2007 July 26, 2007
Oklahoma Corporation Commission Cause No. PUD 2002-038 REMAND	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding a power contract proposal of Lawton Cogeneration and the pricing analysis of Public Service Company of Oklahoma.	Prefiled Testimony Rebuttal Testimony Oral Testimony	October 28, 2005 March 17, 2006 May 9, 2006

New Brunswick Board of Commissioners of Public Utilities (PUB) Ref: 2005-002	New Brunswick Power Distribution Company	Testimony regarding La Capra Associates' three technical audits of the NBP-Disco purchased power budget and variance analyses for FY 2004 – 2006.
		Oral Testimony February 14-22, 2006
Connecticut Department of Public Utility Control Docket No. 05-07-14 Phases I and II	Connecticut Energy Advisory Board	Testimony regarding Connecticut's need for electric capacity to meet reliability requirements and to mitigate congestion charges in the wholesale markets.
		Oral Testimony February 14-22, 2006 May 1, 2006 June 15, 2006 September 26, 2005
Hawaii Public Utilities Commission Docket No. 03-0372	Hawaii Division of Consumer Advocacy	Testimony regarding competitive bidding rules and integrated resource planning.
		Oral Testimony December 12-16, 2005
Oklahoma Corporation Commission Cause No. PUD 2005-151	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding resource planning, prudence of generation investment of Oklahoma Gas & Electric Company.
		Prefiled Testimony September 12, 2005 Rebuttal Testimony September 29, 2005 Oral Testimony October 18, 2005
Oklahoma Corporation Commission Cause No. PUD 2003-076	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding resource planning, prudence of generation investment and fuel and purchased power expenses of Public Service Company of Oklahoma.
		Prefiled Testimony January 4, 2005
Oklahoma Corporation Commission Cause No. PUD 2003-633/4	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding power contract proposal for Blue Canyon wind development and avoided costs of Public Service Company of Oklahoma.
		Prefiled Testimony August 16, 2004
Civil Litigation Maine Superior Court Docket No. CV-01-24	Central Maine Power Co.	Factual and expert witness in litigation regarding pricing provisions of a purchased power agreement between Central Maine Power and Benton Falls Associates.
		Deposition Testimony April 28, 2004
Oklahoma Corporation Commission	Oklahoma Attorney General	Testimony regarding power contract proposal for PowerSmith Cogeneration and avoided cost analysis of Oklahoma Gas & Electric Company.
		Prefiled Testimony February 18, 2004 Rebuttal Testimony March 16, 2004 Oral Testimony August 4, 2004
Nevada Public Utilities Commission	Nevada Attorney General Bureau of Consumer Protection	Testimony regarding the Nevada Power Company's Integrated Resource Plan and associated financial plan.
		Prefiled Testimony September 19, 2003 Oral Testimony October 15, 2003

Resume of Daniel E. Peaco
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Massachusetts Energy Facilities Siting Council Docket No. EFSB-02-2	Cape Wind	<p>Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new wind power facility.</p> <p>Prefiled Testimony February 14, 2003 Oral Testimony August 6&7, 2003</p>
Maine State Board of Property Tax Review	United American Hydro	<p>Testimony regarding the Maine and New England power market prices pertaining to the valuation of a hydro-electric power facility in Winslow, Maine.</p> <p>Oral Testimony June 18, 2003</p>
Nevada Public Utilities Commission Docket No. 03-1014	Nevada Attorney General Bureau of Consumer Protection	<p>Testimony regarding the prudence of Sierra Pacific Power Company in its purchased power expenses for the period December 2001 through November 2002.</p> <p>Prefiled Testimony April 25, 2003</p>
Oklahoma Corporation Commission Cause No. PUD 2002-038	Oklahoma Attorney General	<p>Testimony regarding a power contract proposal of Lawton Cogeneration and the pricing analysis of Public Service Company of Oklahoma.</p> <p>Prefiled Testimony December 16, 2002 Oral Testimony May 22, 2003</p>
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	<p>Testimony regarding the Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas.</p> <p>Prefiled Testimony September 4, 2001</p>
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	<p>Testimony regarding the Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas.</p> <p>Prefiled Testimony September 29, 2000</p>
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	<p>Testimony regarding the establishment of uniform Policies and guidelines for a Standard Service Package.</p> <p>Staff Proposal and Comments June 13, 2000 Reply Comments July 21, 2000 Sur reply Comments August 2, 2000 Oral Testimony August 8, 2000 Petition for Rehearing Rebuttal Testimony November 15, 2000 Oral Testimony November 29, 2000</p>
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	<p>Testimony regarding the determination of the merits of declaring retail billing services competitive effective At the start of retail open access.</p> <p>Oral Testimony June 27, 2000 Prefiled Rebuttal Testimony June 23, 2000 Prefiled Testimony June 16, 2000 Oral Testimony May 10, 2000</p>

Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the minimum filing requirements for market power studies to be filed by the Arkansas Electric utilities and affiliated retail companies. Oral Testimony June 1, 2000
Amer. Arb. Assoc. No. 50T 198 00197-98	Vermont Joint Owners	Testimony regarding economic damages resulting from alleged breach of a long-term purchase power agreement between Hydro-Quebec and Vermont utilities (VJO). Oral Testimony May 25, 2000 Prefiled Rebuttal Testimony February 10, 2000 Prefiled Testimony August 13, 1999
Rhode Island Energy Facilities Siting Board	Indeck-North Smithfield, L.L.C.	Testimony regarding economic, reliability and environmental need for power in the Rhode Island and New England power markets regarding the need for new, merchant power facility. Prefiled Testimony August 16, 1999 Oral Testimony August 17, 2000 Prefiled Testimony January 26, 2001 Oral Testimony March 23, 2001
Civil Litigation Maine Superior Court Docket No. CV-98-212	Central Maine Power Co.	Factual and expert witness in litigation regarding pricing provisions of a purchased power agreement between Central Maine Power and Regional Waste Systems. Deposition Testimony May 5, 1999
Connecticut Energy Facilities Siting Council Docket No. 190	PDC – El Paso Meriden LLC	Testimony regarding economic, reliability and environmental need for power in the Connecticut and New England power markets regarding the need for new, merchant power facility. Prefiled Testimony January 25, 1999
Rhode Island Energy Facilities Siting Council Docket No. SB-98-1	R. I. Hope Energy, L. P.	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony November 4, 1998 Prefiled Testimony October 30, 1998
Massachusetts Energy Facilities Siting Council Docket No. EFSB-91-101A	Cabot Power Corp.	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony May 27, 1998 Prefiled Testimony August 15, 1997
Massachusetts Energy Facilities Siting Council Docket No. EFSB-97-2	ANP Blackstone Energy	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony April 6, 1998 Prefiled Testimony January 23, 1998
Massachusetts Energy Facilities Siting Council Docket No. EFSB-97-1	ANP Bellingham	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony February 3, 1998 January 28, 1998

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Alvaro E. Pereira, Ph.D.*Managing Consultant*

Alvaro Pereira is an accomplished energy professional with 20 years of experience in economic, technical, and policy analysis with expertise in rate design, power markets, and climate change policy. Dr. Pereira joined La Capra Associates in 2008, following nearly a decade with the Massachusetts Department of Energy Resources as the head of a group responsible for economic and technical analyses of policies, programs, and regulatory filings. At La Capra Associates, he works in a variety of areas including procurement, renewable energy project analysis and pro forma development, and analyses of energy and capacity market rules, prices, and performance. Dr. Pereira is an experienced expert witness, having testified on various occasions before regulatory commissions, and he has provided expert-witness research and testimony in cases involving costs and benefits and environmental quality. Dr. Pereira also has expertise in rate design and analysis, demand resources, and economic impact modeling and forecasting. He has an M.S. in Transportation and a Ph.D. in Urban and Regional Economics and Studies, both from M.I.T., and two bachelor degrees in Economics and Finance from UMass Amherst.

SELECTED PROFESSIONAL EXPERIENCE***Procurement/Market Analysis***

- Providing ongoing procurement support (buy and sell sides) to a number of clients throughout the Northeast, including Amtrak, the Massachusetts Water Resources Authority, and the Massachusetts Port Authority. Supported and conducted numerous electricity solicitations, ranging from 5 MW to 100 MW. Also providing expert advice regarding participation (load and generation assets) in wholesale energy, capacity, REC, and reserve markets.
- Forecasted capacity market prices (in New England, New York, and PJM) for use in project evaluation and impacts on retail rates. Included discussion of bidding strategies for generators given different projections for auction clearing prices. Forecast work included determination of future implementation levels of energy efficiency and other demand-side resources as capacity resources.
- Participated in statewide procurement of electric, gas, and petroleum products for Commonwealth of Massachusetts agencies and facilities. Forecasted gas and electric prices for use in procurement decisions.
- Managed procurement of long-term renewable electricity for use by Massachusetts agencies and facilities. Calculated and compared costs of long-term renewable power versus short-term brown power procurements to inform state agency budgets.
- Managed technical assistance to municipalities seeking to aggregate their customers for purposes of procuring electricity.

Renewables/RGGI

- Co-authored study of economic costs and benefits of solar (SREC-II program) in Massachusetts. Applied modeling framework that analyzed wholesale market, avoided transmission and distribution, and avoided generation benefits.
- Co-authored separate analyses of large offshore wind and solar expansion scenarios in

New York. Led team that analyzed rate, environmental, and cost-benefit impacts of different solar buildouts. Developed modeling interface among pro forma, energy, and economic impact models.

- Co-authored report on the hedge value of offshore wind resources in Maryland. Work applied portfolio theory by examining offshore wind's price variability compared to non-renewable generation options and considering wind's price covariance with fossil-fueled generators to document price-related benefits.
- Provided analytical support for rate impact calculation of offshore wind legislation for the Maryland Energy Administration.
- Provided advice regarding market price/modeling and economic cost/benefit analysis to the New Jersey Board of Public Utilities in support of development of rules and regulations for the Offshore Wind Renewable Energy Credit (REC) program.
- Co-authored report on Delmarva Power's request for approval of solar REC contracts for the Delaware Public Service Commission Staff. Examined financial feasibility and underlying revenue/cost data of a 10 MW solar farm for reasonableness and public interest.
- Currently providing NEPOOL-GIS third-party verification services for NEPOOL-GIS for hydroelectric, landfill gas, solar, and wind facilities.
- Provided technical and market advice and wrote portions of the proposal for a 220-MW Maine-based wind farm submitted to the Massachusetts' utilities request for proposals for long-term supply and RECs. Played a similar role in support of registration of an 80-MW Vermont-based wind farm for qualification in the ISO-NE forward capacity market.
- Evaluated the financial feasibility of a proposed offshore wind installation and shrouded turbine wind facility in Hull, Massachusetts, as well as for solar installations for a number of clients. Forecasted and analyzed different revenue streams (energy, renewable energy certificates, and capacity) and examined financing options, while incorporating new federal and state incentive programs and policies.
- Researched forward capacity market rules in New England regarding qualification requirements, auction administration, financial assurance, and resource availability adjustments as regards to renewable resources and other intermittent generators. Co-authored study that examined the feasibility and impacts of restricting imports of renewable generation into New England and for participation in the Massachusetts RPS.
- Co-authored Massachusetts regulations for state auction of Regional Greenhouse Gas Initiative (RGGI) CO₂ allowances. *Note:* Massachusetts was the first state to draft regulations related to auctioning of carbon allowances.
- Supervised the economic modeling and impact analysis of changes in regional energy systems, including the expansion of renewable and DSM activities, due to the establishment of a regional cap and trade system for carbon emissions through the RGGI program. This work led to ratification and approval of the cap and trade system by a majority of the Northeastern states.

Demand Resources

- Reviewed the energy efficiency plans and underlying testimonies of PPL and PECO in proceedings before the Pennsylvania Public Utility Commission in support of testimony evaluating the costs and benefits of plan components.
- Designed time-of-use rates for municipal utilities in order to provide incentives for

reductions during summer peak. Calculated potential impacts of dynamic rates on both capacity payments by the utilities and bill savings to customers.

- Enrolled demand-side resources (energy efficiency and distributed generation) of various Massachusetts agencies into the New England Forward Capacity Market. Wrote monitoring and verification plans for a variety of demand-side resources.
- Lead author on annual report for Massachusetts that chronicled the cost-effectiveness, customer allocation of funds, short and long-term savings goals and the development of a competitive market for energy efficiency services.
- Developed modeling approach and methodology to estimating the energy system and economic impacts of DSM activities conducted in the Commonwealth.

Rates and Regulation

- Reviewed demand forecasts underlying Columbia Gas of Massachusetts' 2013 Demand and Supply Forecast filing.
- Conducted load forecast for Blackstone Gas Company in support of their 2012 Long Range Supply (or Integrated Resource) Plan. Submitted written testimony in support of forecasts of customer counts, sendouts (design day and normal monthly), and usage per customer. Conducted forecasts under a variety of weather and design day criteria.
- Reviewed load forecasts underlying Rocky Mountain Power's request to increase electric service rates. Analyzed methods, data sources, and assumptions. Conducted alternative forecasts of customer counts, sales per customer, and overall sales.
- Provided research and wrote portions of the Maryland Energy Administration's comments to the Maryland Public Service Commission proceeding on RFPs for generation capacity resources under long-term contracts (Case No. 9214).
- Assisted in writing expert testimony assessing the impacts of wholesale congestion costs on Pennsylvania default service customers. Investigated market mechanisms for financial transmission rights and made recommendations concerning procurement of relevant hedging products.
- Reviewed Vermont state load forecasts for impacts of energy efficiency. Analyzed alternative functional forms and modeling assumptions regarding the role of energy efficiency in peak shaving.

Policy and Planning Analysis

- Co-authored evaluative study of electric industry restructuring efforts in Massachusetts and New England. Examined the impacts of restructuring on market manipulation and consolidation and its effects on electricity costs. Reviewed the status of competition of generation and retail electric supply and discussed the prognosis for residential customer participation in retail markets.
- Authored study of strategies to reduce Maine's dependence on oil. Reviewed current and forecasted oil usage across all energy sectors and uses and the costs of different strategy choices. Study findings were used to inform legislative and policy recommendations.
- Analyzed and computed national and regional generation, transmission, and distribution infrastructure capital investment needs. Advised on the modeling and impacts of failure to meet these investment needs on the economy.
- Authored study for the Massachusetts Department of Energy Resources regarding the costs and benefits of municipalization of utility-owned distribution and non-PTF

transmission assets. Examined potential impacts on reliability, utility operations and revenues, municipal taxes, electricity rates, financing, energy efficiency programs, and low-income customers.

- Conducted analysis of state energy entities in Connecticut in terms of structure and functional roles. Performed survey of other states and compared and contrasted alternative structures with existing state structure. Wrote sections of Phase I report describing results of this work. Contributed to Phase II report that recommended changes to agency structure and roles, including analysis of a power authority option.
- Contributed to all phases of proceeding before Connecticut Siting Council regarding the 2008 Forecasts of Load and Resources. Prepared discovery and wrote comments to draft report. Recommended changes to promote consistency between forecast and 2008 Integrated Resource Plan that was in review and to clarify assumptions underlying different utilities' forecast for conservation and load management programs
- Wrote appendix detailing existing procurement processes and programs available to Connecticut policymakers. Appendix served as component of La Capra Associates' review of the 2008 Integrated Resource Plan submitted by the utilities.

Expert Witness

- Testified before the Rhode Island Public Utilities Commission on behalf of the Rhode Island Division of Public Utilities and Carriers regarding Recommendations for 2014 Distributed Generation Classes, Ceiling Prices, Targets, and Standard Contracts. (*Dockets No. 4277 and 4288, February 26, 2014.*)
- Testified (direct and surrebuttal) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the petition and revised petition for approval of the sale of New England Gas Company's assets. (*D.P.U. 13-07, May 31, 2013.*)
- Testified (direct) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by People's TWP LLC for approval of their 2013 Purchased Gas Cost Filing. (*Docket No. R-2013-2341604, March 6, 2013.*)
- Testified before the Rhode Island Public Utilities Commission on behalf of the Rhode Island Division of Public Utilities and Carriers regarding Recommendations for 2013 Distributed Generation Classes, Ceiling Prices, and Targets submitted by the Rhode Island Office of Energy Resources. (*Docket No. 4288, January 11, 2013.*)
- Testified (direct) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by Citizens' Electric Company and Wellsboro Electric Company for approval of their proposed joint default supply service plan. (*Docket No. P-2011-2307827, 2307931, August 21, 2012.*)
- Testified (direct and surrebuttal) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by PPL Electric Utilities for approval of its proposed reconciliation and competitive transition riders for default supply service. (*Docket No. P-2011-2256365, November 2, 2011.*)
- Testified (direct) before the Delaware Public Service Commission on behalf of the Delaware Public Service Commission Staff regarding the application of Delmarva Power and Light Company for approval of qualified fuel cell provider project tariffs. (*PSC Docket No. 11-362, October 18, 2011.*)
- Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the

Massachusetts Attorney General regarding the joint petition for approval of a merger between NSTAR and Northeast Utilities (*D.P.U. 10-170, May 20, 2011.*)

- Testified before the Maryland Public Service Commission on behalf of the Maryland Energy Administration regarding reliability pricing model and the 2013/14 delivery year base residual auction results (*Administrative Docket PC22, October 15, 2010.*)
- Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the request for a change in distribution rates by National Grid (*D.P.U. 10-55, June 28, 2010.*)
- Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the proposed solar program filed under the Green Communities Act by National Grid (*D.P.U. 09-38, August 2009.*)
- Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the proposed solar program filed under the Green Communities Act by Western Massachusetts Electric Company (*D.P.U. 09-05, July 2009.*)
- Testified before the Massachusetts Department of Public Utilities on behalf of the Massachusetts DOER regarding rate structures that will promote efficient deployment of demand resources. (*D.P.U. 07-50, October 2007.*)
- Testified (direct and surrebuttal) before the Massachusetts Department of Telecommunications and Energy on behalf of the Massachusetts DOER regarding the performance-based rates and earnings sharing mechanism proposed by Bay State Gas Company. (*D.T.E. 05-27, July 2005.*)
- Testified (direct) before the Massachusetts Department of Telecommunications and Energy on behalf of the Massachusetts DOER regarding the appropriateness of standby distribution rates proposed by NSTAR Electric. (*D.T.E. 03-121, March 2004.*)

EMPLOYMENT HISTORY

La Capra Associates, Inc.

Managing Consultant

Boston, MA
June 2011 – Present

Senior Consultant/Consultant

2008 – May 2011

Massachusetts Division of Energy Resources

Manager, Energy Supply & Pricing Group (December 1999 – 2008)

Boston, MA

1999 – 2008

Senior Economist (March 1999 – November 1999)

Massachusetts Institute of Technology

Lecturer in the Department of Civil & Environmental Engineering

Cambridge, MA

1998 – 1999

Independent Consultant

Economist and Data Modeler

Somerset, MA

1998

Massachusetts Institute of Technology

Visiting Lecturer in the Department of Urban Studies and Planning

Cambridge, MA

1997 – 1998

Research Associate, Department of Urban Studies and Planning (September 1991 – August 1997)

Research Assistant, Department of Civil Engineering (September 1989 – August 1991)

EDUCATION

Massachusetts Institute of Technology	Cambridge, MA
<i>Ph.D., Urban and Regional Economics and Studies</i>	1997
<i>M.S., Transportation</i>	1991
University of Massachusetts	Amherst, MA
<i>B.B.A., Finance (Summa Cum Laude)</i>	1989
<i>A.B., Economics (Summa Cum Laude)</i>	1989

PROFESSIONAL TRAINING & SKILLS

Proficient in STATISTICA, Forecast Pro, and comparable statistical analysis programs, tsMetrix and comparable neural network programs, REMI and comparable economic-modeling packages, ENERGY2020 and comparable energy market simulation modeling programs. Familiar with C programming language and Visual Basic. Fluent in Portuguese. Working knowledge of Spanish.

ADDITIONAL PUBLICATIONS, PRESENTATIONS & CONFERENCES

"Renewable Energy Development in the Shale Era." Presentation to the AQPER Colloque 2014, Quebec Association for the Production of Renewable Energy, February 20, 2014, Quebec City, Canada.

"Forward Capacity Market as Swiss Army Knife." Presentation to the 11th Annual Power Markets Conference: Strategic Planning for New England's Power Markets, Northeast Energy and Commerce Association, October 24, 2012, Westborough, MA.

"Shale Gas and Renewable Energy: Friends or Foes?" Presentation to Air & Waste Management Association—New England Section Fall 2012 Conference, October 12, 2012, Framingham, MA.

"RGGI Auction Process" Presentation to RGGI Implementation at the State Level: Regulations, Requirements & Strategies, Northeast Energy and Commerce Association Workshop, June 19, 2008, Boston, MA.

"Electricity Price, Reliability and Markets Report 2005." A Report to the Great and General Court on the Status of Restructured Electricity Markets in Massachusetts. Commonwealth of Massachusetts, December 2006 (lead author).

"Electricity Price, Reliability and Markets Report 2002-2004." A Report to the Great and General Court on the Status of Restructured Electricity Markets in Massachusetts. Commonwealth of Massachusetts, Spring 2006 (lead author).

"Meeting New England's Future Natural Gas Demands: Nine Scenarios and Their Impacts." A Report to the New England Governors, Boston, Massachusetts, March 2005 (lead author).

"2002 Energy Efficiency Activities." An Annual Report to the Great and General Court on the Status of Energy Efficiency Activities in Massachusetts. Commonwealth of Massachusetts, Summer 2004 (lead author).

"2001 Energy Efficiency Activities." An Annual Report to the Great and General Court on the Status of Energy Efficiency Activities in Massachusetts. Commonwealth of Massachusetts, Summer 2003 (lead author).

"Economic Development of the Boston Harbor: Informing the Process." Written for Boston Harbor Conference, May 11, 1998.

"Regional Economic Modeling and the REMI Model Evaluation." Commissioned Manuscript for Appalachian Regional Commission, September 4, 1998 (co-author).

"Transportation Policy and the 1990 Clean Air Act." In Research in Urban Economics, New Urban Strategies www.lacapra.com

in Advanced Regional Economies, 1996 (co-author).

"Regional Rail Planning in New England." Proceedings of the Transportation Research Board, 1994 (co-author).

"Meeting New England's Future Natural Gas Demand." Presentation to the Center for LNG & U.S. Energy Association, LNG Conference, June 16, 2005, National Press Club, Washington, D.C.

"The Intradependence of Natural Gas & Electricity Markets in New England." Presentation to Northeast Energy Efficiency Council and the Association of Energy Service Professionals Annual Conference, October 25, 2004, Marlboro, Massachusetts.

"Retail Treatment of Zonal Generation Prices in Massachusetts." Presentation to the Massachusetts Electric Restructuring Roundtable, September 13, 2002, Boston, Massachusetts.

"Future of Retail Competition in Massachusetts, Just the Facts, Massachusetts." Presentation to the Massachusetts Electric Restructuring Roundtable, January 18, 2002, Boston, Massachusetts.

"Developing an Effective Demand Response." Presentation to the Electric Power Supply Association State Issues and Membership Meeting, July 24, 2001, Washington, D.C.

"Emergency Prevention, Monitoring, and Communication." Presentation to the New England Disaster Recovery eXchange Meeting, June 13, 2001, Boston, Massachusetts.

"Logistics and Transportation Use in the Chicago Metalworking Sector: Implications for Transportation Planning." Presentation to the 43rd North American Meeting of the Regional Science Association International, November 16, 1996, Washington, D.C.

"A Study of STAA Truck Safety in New England." Presentation to a Conference of the New England Transportation Infrastructure Research Programs, June 14, 1993, The New England Center, Durham, New Hampshire.



Douglas A. Smith

Senior Consultant

Doug Smith has over nine years of experience in the electric industry. He brings diverse strengths to La Capra Associates' project teams, applying his extensive technical and analytical skills to his supporting role as Senior Analyst. A business professional with over twenty years of increasing responsibility as a consultant to various industries, Mr. Smith has a solid background in analysis, finance and accounting, database and software development, quality assurance and project management.

Mr. Smith leads the firm's Market Analytics team which is responsible for maintaining La Capra Associates' wholesale power market model and wholesale market outlook, researching energy and capacity markets throughout North America, and producing a variety of forecasts used to provide decision support for client needs including asset valuation, integrated resource planning, non-transmission alternative analysis and other similar projects. He has strong experience in market analysis and power system dispatch analysis, and has been responsible for projecting power costs for a number of clients.

SELECTED PROFESSIONAL EXPERIENCE

- Develops and maintains, on a continuous basis, La Capra Associates' Electric Market Model which is used to support the analysis for numerous client projects. These duties include frequent monitoring of fuel prices, generation and transmission additions or retirements, load forecast changes, and market rule changes. Also responsible for reflecting any identified changes in the market model. Performs frequent reviews of modeled outcomes of ISO-NE, NY-ISO and PJM control areas.
- Provides review, analysis and support of a third party long term forecast of NY energy and capacity markets for several economic studies for NYSERDA.
- Managed the review of a large generation owner's price forecasting process. Provided recommendations for improvements designed to more closely align forecasting efforts with internal requirements. Updated and extended the client's New York modeling capabilities using the AURORA production cost model. Recommended key benchmarking tools for evaluation of specific forecasting results.
- Assisted in the assessment of the request to the Arkansas Public Service Commission for a declaratory order finding that installation of environmental controls at the Flint Creek power plant is in the public interest.
- Assisted in the assessment of the request to the North Dakota Public Service Commission for an Advanced Determination of Prudence for the Montana Dakota Utilities GT.
- Assisted in the assessment of the request to the North Dakota Public Service Commission for an Advanced Determination of Prudence for the Big Stone Air Quality Control System.
- Assisted in a review of Entergy Arkansas's strategic planning for post-System Agreement operation on behalf of the General Staff of the Arkansas Public Service Commission.
- Assisted a Vermont Utility in the evaluation of a potential generation purchase. Designed a complex model for evaluating potential revenue and cost streams under a variety of scenarios.
- Assisted in the study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Vermont. Assisted in the development of an economic scorecard designed to facilitate comparing transmission and alternative solutions on equal footing. Compared potential rate impacts of the various proposed solutions.

- Assisted in the study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Maine. Prepared market models to estimate the impact of the various solutions on Maine and New England clearing prices. Assisted in the economic evaluation of the potential solutions.
- Prepared a study for a utility of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the distribution level supply system in Vermont. Developed an economic tool to evaluate the cost of “pre-contingency” operation of alternative generation options.
- Participates in the La Capra Associates modeling team efforts to maintain and develop La Capra Associates’ Northeast Market Model. In this role, Mr. Smith monitors fuel, load and generation information related to the New England and New York markets.
- Analyzes budgetary and other cost related data on behalf of the National Railroad Passenger Corporation (Amtrak). Interacts with the client on a monthly basis, providing analysis of power cost drivers, tracking of monthly power costs and other accounting and electric consulting services. Provides assistance in power procurement activities.
- Assisted in planning, managing and performing an audit of actual and hypothetical purchased power costs for a Michigan utility. Issues included market valuation of potential sales, proper treatment of a pumped storage unit and validation of commitment/dispatch logic. Project also involved a process audit and review of large volumes of data involved in determining hypothetical system costs.
- Assisted in maintenance of an Allocated Cost of Service model, including modification of allocators and introduction of new methodology.
- Researched issues related to state, regional and Federal environmental regulations and their impacts on energy generation. Modeled environmental variables including current SO₂, NO_x and CO₂ rates and allowance prices, emission control technology, and likely future changes.
- Researched issues related to FAS 133/149 implementation for energy companies. Assisted in drafting a white paper based on the findings. Assisted in the application of FAS 133 for a variety of energy transactions.
- Participated in developing revenue projections for valuation of power plant.

EMPLOYMENT HISTORY

La Capra Associates, Inc.

Senior Consultant

Boston, MA

April 2008 – present

Analyst

March 2004 – March 2008

The Sports Authority

Senior POS/EDP Programmer/Analyst

Ft Lauderdale, FL

January 2002 – March 2004

University of Colorado

*Instructor, Oracle SQL*Plus Class*

Boulder, CO

March 2001 – July 2001

SHL USA Inc.

Software Engineer

Boulder, CO

February 2000 – April 2001

Strategic Technologies Group

Senior Consultant

Englewood, CO

June 1995 – February 2000

EDUCATION

Syracuse University

B.S., Accounting, Summa cum Laude

Syracuse, NY

May 1991

Robert M. Zavadil
Executive Vice President

Professional Experience

***(2003- present)* EnerNeX Corporation**

Co-founder; Vice President and Principal Consultant responsible for developing and overseeing EnerNex Corporation's power system engineering and consulting business.

Mr. Zavadil is a nationally recognized expert in electric power system issues for wind generation. He has worked on electric power system issues for wind generation for over 20 years. His clients in the range from turbine designers and manufacturers to project developers and operators, along with transmission service providers and independent transmission system operators.

He has extensive experience with new and emerging technologies for electric power generation, delivery, and utilization, including distributed generation and power electronics-based equipment and has over 30 years of experience with advanced modeling and simulation tools for electric power systems.

Mr. Zavadil was the project team manager and study lead for the Eastern Interconnection Wind Integration and Transmission Study (EWITS) that was completed in late 2009. The study, which was sponsored by the U.S. Department of Energy and managed by the National Renewable Energy Laboratory, broke new ground in the assessment of wind generation impacts on very large bulk power systems. The application of economics-based techniques for assessing transmission needs across an entire interconnection and development of analytical methodologies for estimating the impacts of on operating reserve requirements of very high penetrations of variable wind generation were two new elements for wind integration studies.

Other wind energy-related project experience includes wind integration studies for the following clients:

- Minnesota Department of Commerce (2004)
- Minnesota Public Utilities Commission (2006)
- Xcel Energy – Northern States Power (2005)
- Xcel Energy – Public Service Colorado (2005 – present)
- Portland General Electric (2007- present)
- Public Service New Mexico (2008)
- Sacramento Municipal Utility District (2007)
- Arizona Public Service (2009)
- Avista Utilities (2007)
- Idaho Power Company (2007)
- Nebraska Public Power District (2009)
- ISO-New England (2009)
- PJM (2011-)

In addition, Mr. Zavadil leads his company's efforts in the development and application of wind generation models for assessing impacts on bulk network voltage control, reactive power needs, and

transient stability.

(1989 - 2003) Electrotek Concepts/WPT

At Electrotek, Mr. Zavadil consulted for a number of Electrotek clients including the Electric Power Research Institute, the National Renewable Energy Laboratory, major U.S. electric utilities, and private corporations. His technical responsibilities included distribution system and end-user power quality and power electronics, motor and drive technology and applications, power quality and power quantity measurements, and renewable energy applications.

Mr. Zavadil managed technical operations in Electrotek's Mountain View, California office from late 1992 until his 1996 transfer to sister company BMI. In 1997, he returned to Electrotek. In addition to consulting, his responsibilities included new corporate product development, sales and marketing of Electrotek products and services, and development of new business areas and ventures.

(1996-1997) Basic Measuring Instruments

Mr. Zavadil served as Marketing Manager for BMI following their merger with Electrotek in 1995. As a member of the management staff, he was responsible for all marketing-related activities, including new product development, sales representative support, product documentation, creation of promotional materials and execution of promotional plans, and customer education.

(1982- 1989) Nebraska Public Power District

At Nebraska Public Power District. Mr. Zavadil worked in the High Voltage Protection and Technical Support Sections of the Transmission and Distribution Engineering Department. His responsibilities included technical studies on specialized protective relaying schemes, substation grounding, irrigation system/power line compatibility, and detailed analysis of transmission system outages. He also performed technical electrical studies associated with the MANDAN 500 kV transmission project, including electromagnetic compatibility, switching surges, and design of series capacitor protection schemes using metal-oxide varistors.

He conducted seminars for internal staff and customers on harmonics, grounding, transients, and inductive coordination. Mr. Zavadil worked with commercial and industrial customers on power quality matters related to equipment failure, process interruption, and monitoring.

Education

B.S. in Electrical Engineering ,with Highest Honors
South Dakota State University, 1982

Professional Affiliations

IEEE Power and Energy Society, member
IEEE Power Electronics Society, member
IEEE Industrial Applications Society, member
Vice-Chair, IEEE Power and Energy Society Windpower Coordinating Committee
Registered Professional Engineer – State of Nebraska (inactive)

1 **SUBJECT: Experience and Qualifications**

2
3 **QUESTION:**

4 Please identify any judicial or administrative proceedings in which the persons identified in
5 MH/LCA 1a) have been qualified as an expert witness of testified regarding the subject matter
6 of the Appendix to which they contributed.

7
8 **RESPONSE:**

9 Please see the attached lists of appearances for Daniel Peaco, John Athas, and Mary Neal. Note,
10 the list of appearances for Daniel Peaco is attached to his CV and can also be found in the
11 attachment to MH/LCA-001b.

EXPERT TESTIMONY AND APPEARANCES

<u>Forum</u>	<u>Client</u>	<u>Topic</u>
Arkansas Public Service Commission Docket No. 12-069-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's proposed divestiture of its transmission business to ITC Holdings. Direct Testimony April 19, 2013 Surrebuttal Testimony June 7, 2013 Supplemental Testimony - Rate Mitigation Aug 15, 2013
Superior Court Windham Unit State of Vermont Docket No. 547-11-12 Wmev	TransCanada Hydro Northeast, Inc.	Expert testimony regarding the valuation of a four hydropower facilities totaling 260 MW in appeal of appraised values in the towns of Vernon, Rockingham, and Barnet VT. Valuation Report July 15, 2013
Arbitration AAA Case No. 11 198 Y 002014 12	City of Burlington, VT Burlington Electric Dept.	Expert testimony regarding the valuation of a 7 MW hydropower facility and the determination of fair value for transfer of ownership of the asset. Valuation Report June 21, 2013 Rebuttal Report July 26, 2013 Deposition Testimony September 12, 2013 Oral Testimony October 4, 2013
US District Court Colorado Civil Action No. 10-CV-02349-WJM-KMT	Nebraska Power Supply Issues Group	Expert testimony regarding Tri-State G&T cost to serve five Nebraska members. Expert Report December 31, 2012 Deposition Testimony February 27, 2013
Arbitration AAA Case No. 11 153 Y 02133 11	Owners of Brassua Dam FPL Hydro Maine LLP Madison Paper Industries Merimil Ltd Partnership	Expert testimony regarding the valuation of a 4 MW hydropower facility and the determination of amortization reserve obligations under FERC license provisions. Valuation Report November 1, 2012 Amortization Reserve Report November 1, 2012 Amortization Reserve Rebuttal November 15, 2012 Oral Testimony December 5, 2012
Burrillville Board of Review	Transcanada; Ocean States Power Holdings, Ltd..	Expert testimony regarding the valuation of a 540 MW combined cycle power plant in appeal of an appraisal conducted for the Town of Burrillville, RI. Valuation Report January 4, 2012 Oral Testimony March 1, 2012
Arkansas Public Service Commission Docket No. 10-011-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's strategic reorganization options and request for authorization to transfer control of its transmission asset to the Midwest ISO. Oral Testimony May 31, 2012 Surrebuttal Testimony April 27, 2012 Direct Testimony March 16, 2012

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Burrillville Board of Review	Transcanada; Ocean States Power Holdings, Ltd..	Expert testimony regarding the valuation of a 540 MW combined cycle power plant in appeal of an appraisal conducted for the Town of Burrillville, RI.
		Valuation Report January 4, 2012 Oral Testimony March 1, 2012
Oklahoma Corporation Commission Cause No. PUD 201100186	OK Corporation Commission OK Attorney General	Testimony regarding a 60 MW Wind Energy Purchase Agreement and Cogeneration deferral Agreement proposed by Oklahoma Gas & Electric Company, addressing cost pre-approval, and a requested waiver from competitive procurement. requirements.
		Prefiled Testimony February 8, 2012
Arkansas Public Service Commission Docket No. 10-011-U	General Staff of the AK Public Service Comm.	Testimony regarding the evaluation of Entergy Arkansas's strategic reorganization options upon its exit from the Entergy System Agreement.
		Oral Testimony September 9, 2011 Surrebuttal Testimony August 18, 2011 Supplemental Initial Testimony July 12, 2011 Initial Testimony February 11, 2011
State Corporation Commission of the State of Kansas	The Landowner Group	Testimony regarding the application of ITC Great Plains for a siting permit for a 345-kV Transmission Line addressing project need and route selection methodology.
		Initial Testimony April 18, 2011
Federal Energy Regulatory Commission (FERC) RM10-23-000	Maine Public Utilities Commission, et. al.	Expert Affidavit regarding economic analysis methodology for transmission project evaluation. Provided in reply comments on the FERC Transmission Planning and Cost Allocation NOPR.
		Affidavit November 12, 2010
Maine Public Utilities Commission Docket No. 2008-255	Central Maine Power	Testimony regarding CMP's application for approval the Lewiston Loop 115kV Transmission Project. Testimony addressed non-transmission alternatives.
		Oral Testimony November 16, 2008 December 14, 2010 Rebuttal Testimony November 8, 2010 August 27, 2010
Oklahoma Corporation Commission Cause No. PUD 201000092	OK Corporation Commission OK Attorney General	Testimony regarding a 99.2 MW wind farm power purchase agreement and green energy choice tariff proposed by Public Service Company of Oklahoma, addressing cost pre-approval, resource need, and competitive procurement. requirements..
		Prefiled Testimony October 5, 2010 Oral Testimony November 3, 2010

Resume of Daniel E. Peaco
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Oklahoma
 Corporation Commission
 Cause No. PUD 201000037

Oklahoma Attorney General

Testimony regarding a 198 MW wind farm proposed by Oklahoma Gas & Electric, addressing cost pre-approval, resource need, and competitive procurement. requirements.

Prefiled Testimony

June 11, 2010

Connecticut Dept. of
 Public Utilities Control
 (DPUC)
 Docket No, 10-02-07

Connecticut Energy
 Advisory Board (CEAB)

Lead witness sponsoring the CEAB's *2010 Comprehensive Plan for the Procurement of Energy Resources*.

Oral Testimony

June 2 & 3, 2010

Georgia Public
 Service Commission

Georgia Public
 Service Commission
 Public Interest
 Advocacy Staff

Witness sponsoring testimony regarding integrated resource planning methods, renewable energy, solar PV demonstration projects, and uncertainty analysis.

Docket No, 31081

Written Testimony

May 7, 2010

Oral Testimony

May 18, 2010

Maine Public Utilities
 Commission
 Docket No. 2008-255

Central Maine Power

Testimony regarding CMP's application for approval \$1.5 B Maine Power Reliability Transmission Project. Testimony addressed non-transmission alternatives and economic benefits, economics of proposed solar alternative, wind energy development benefits.

Oral Testimony

October 10, 2008
 November 19, 2008
 December 21, 2009
 February 4, 2010
 December 4, 2009
 April 3, 2009

Rebuttal Testimony

Oklahoma
 Corporation Commission
 Cause No. PUD 200900167

Oklahoma Attorney General

Testimony regarding a 102 MW wind farm proposed by Oklahoma Gas & Electric, addressing cost pre-approval, resource need, and competitive procurement. requirements.

Prefiled Testimony

Sept 29, 2009

Oklahoma
 Corporation Commission
 Cause No. PUD 200900099

Oklahoma Industrial Energy
 Consumers (OIEC)

Testimony regarding a power contract pre-approval and recovery of Independent Evaluator costs of Public Service Company of Oklahoma.

Prefiled Testimony

July 14, 2009

Connecticut Dept. of
 Public Utilities Control
 (DPUC)
 Docket No, 09-05-02

Connecticut Energy
 Advisory Board (CEAB)

Lead witness sponsoring the CEAB's *2009 Comprehensive Plan for the Procurement of Energy Resources*.

Oral Testimony

June 30, 2009

Resume of Daniel E. Peaco
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Connecticut Dept. of Public Utilities Control (DPUC) Docket No. 08-07-01	Connecticut Energy Advisory Board (CEAB)	Lead witness sponsoring the CEAB's <i>2008 Comprehensive Plan for the Procurement of Energy Resources</i> . This Plan is the first prepared under the State's new integrated resource planning statute.						
		<table border="0"> <tr> <td>Oral Testimony</td> <td>August 28, 2008 September 22, 2008 October 3, 2008</td> </tr> </table>	Oral Testimony	August 28, 2008 September 22, 2008 October 3, 2008				
Oral Testimony	August 28, 2008 September 22, 2008 October 3, 2008							
Maine Superior Court Civil Action Docket No. cv-06-705	Worcester Energy Co., Inc.	Expert opinion regarding renewable energy and power procurement services.						
		<table border="0"> <tr> <td>Prefiled Report</td> <td>January 30, 2008</td> </tr> <tr> <td>Oral Testimony</td> <td>March 18, 2009</td> </tr> </table>	Prefiled Report	January 30, 2008	Oral Testimony	March 18, 2009		
Prefiled Report	January 30, 2008							
Oral Testimony	March 18, 2009							
Massachusetts Dept. Of Telecommunications And Energy Docket No. DTE/DPU-06-60	Russell Biomass	Testimony regarding economic, reliability and environmental need for renewable power in the Massachusetts and New England in support of Russell Biomass petition for a zoning exemption.						
		<table border="0"> <tr> <td>Prefiled Testimony</td> <td>June 2007</td> </tr> <tr> <td>Oral Testimony</td> <td>October 30, 2007</td> </tr> </table>	Prefiled Testimony	June 2007	Oral Testimony	October 30, 2007		
Prefiled Testimony	June 2007							
Oral Testimony	October 30, 2007							
Hawaii Public Utilities Commission Docket No. 04-0046	Hawaii Division of Consumer Advocacy	Testimony regarding Hawaii Electric Light Company's integrated resource plan.						
		<table border="0"> <tr> <td>Prefiled Testimony</td> <td>September 28, 2007</td> </tr> <tr> <td>Oral Testimony</td> <td>November 26, 2007</td> </tr> </table>	Prefiled Testimony	September 28, 2007	Oral Testimony	November 26, 2007		
Prefiled Testimony	September 28, 2007							
Oral Testimony	November 26, 2007							
Nevada Public Utilities Commission Docket No. 06-12002	Nevada Attorney General Bureau of Consumer Protection	Testimony regarding the prudence of Sierra Pacific Power Company in its purchased power expenses for the period December 2001 through November 2002.						
		<table border="0"> <tr> <td>Prefiled Testimony</td> <td>September 14, 2007</td> </tr> </table>	Prefiled Testimony	September 14, 2007				
Prefiled Testimony	September 14, 2007							
Oklahoma Corporation Commission Cause No. PUD 2005516 Cause No. PUD 2006030 Cause No. PUD 2007012	Oklahoma Attorney General	Testimony regarding a 950 MW coal-fired generation facility proposed by Public Service of Oklahoma and Oklahoma Gas & Electric, including IRP, competitive procurement, and construction financing issues.						
		<table border="0"> <tr> <td>Prefiled Testimony</td> <td>May 21, 2007</td> </tr> <tr> <td>Rebuttal Testimony</td> <td>June 18, 2007</td> </tr> <tr> <td>Oral Testimony</td> <td>July 26, 2007</td> </tr> </table>	Prefiled Testimony	May 21, 2007	Rebuttal Testimony	June 18, 2007	Oral Testimony	July 26, 2007
Prefiled Testimony	May 21, 2007							
Rebuttal Testimony	June 18, 2007							
Oral Testimony	July 26, 2007							
Oklahoma Corporation Commission Cause No. PUD 2002-038 REMAND	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding a power contract proposal of Lawton Cogeneration and the pricing analysis of Public Service Company of Oklahoma.						
		<table border="0"> <tr> <td>Prefiled Testimony</td> <td>October 28, 2005</td> </tr> <tr> <td>Rebuttal Testimony</td> <td>March 17, 2006</td> </tr> <tr> <td>Oral Testimony</td> <td>May 9, 2006</td> </tr> </table>	Prefiled Testimony	October 28, 2005	Rebuttal Testimony	March 17, 2006	Oral Testimony	May 9, 2006
Prefiled Testimony	October 28, 2005							
Rebuttal Testimony	March 17, 2006							
Oral Testimony	May 9, 2006							

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New Brunswick Board of Commissioners of Public Utilities (PUB) Ref: 2005-002	New Brunswick Power Distribution Company	Testimony regarding La Capra Associates' three technical audits of the NBP-Disco purchased power budget and variance analyses for FY 2004 – 2006.
		Oral Testimony February 14-22, 2006
Connecticut Department of Public Utility Control Docket No. 05-07-14 Phases I and II	Connecticut Energy Advisory Board	Testimony regarding Connecticut's need for electric capacity to meet reliability requirements and to mitigate congestion charges in the wholesale markets.
		Oral Testimony February 14-22, 2006 May 1, 2006 June 15, 2006 September 26, 2005
Hawaii Public Utilities Commission Docket No. 03-0372	Hawaii Division of Consumer Advocacy	Testimony regarding competitive bidding rules and integrated resource planning.
		Oral Testimony December 12-16, 2005
Oklahoma Corporation Commission Cause No. PUD 2005-151	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding resource planning, prudence of generation investment of Oklahoma Gas & Electric Company.
		Prefiled Testimony September 12, 2005 Rebuttal Testimony September 29, 2005 Oral Testimony October 18, 2005
Oklahoma Corporation Commission Cause No. PUD 2003-076	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding resource planning, prudence of generation investment and fuel and purchased power expenses of Public Service Company of Oklahoma.
		Prefiled Testimony January 4, 2005
Oklahoma Corporation Commission Cause No. PUD 2003-633/4	Oklahoma Industrial Energy Consumers (OIEC)	Testimony regarding power contract proposal for Blue Canyon wind development and avoided costs of Public Service Company of Oklahoma.
		Prefiled Testimony August 16, 2004
Civil Litigation Maine Superior Court Docket No. CV-01-24	Central Maine Power Co.	Factual and expert witness in litigation regarding pricing provisions of a purchased power agreement between Central Maine Power and Benton Falls Associates.
		Deposition Testimony April 28, 2004
Oklahoma Corporation Commission	Oklahoma Attorney General	Testimony regarding power contract proposal for PowerSmith Cogeneration and avoided cost analysis of Oklahoma Gas & Electric Company.
		Prefiled Testimony February 18, 2004 Rebuttal Testimony March 16, 2004 Oral Testimony August 4, 2004
Nevada Public Utilities Commission	Nevada Attorney General Bureau of Consumer Protection	Testimony regarding the Nevada Power Company's Integrated Resource Plan and associated financial plan.
		Prefiled Testimony September 19, 2003 Oral Testimony October 15, 2003

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Massachusetts Energy Facilities Siting Council Docket No. EFSB-02-2	Cape Wind	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new wind power facility. Prefiled Testimony February 14, 2003 Oral Testimony August 6&7, 2003
Maine State Board of Property Tax Review	United American Hydro	Testimony regarding the Maine and New England power market prices pertaining to the valuation of a hydro-electric power facility in Winslow, Maine. Oral Testimony June 18, 2003
Nevada Public Utilities Commission Docket No. 03-1014	Nevada Attorney General Bureau of Consumer Protection	Testimony regarding the prudence of Sierra Pacific Power Company in its purchased power expenses for the period December 2001 through November 2002. Prefiled Testimony April 25, 2003
Oklahoma Corporation Commission Cause No. PUD 2002-038	Oklahoma Attorney General	Testimony regarding a power contract proposal of Lawton Cogeneration and the pricing analysis of Public Service Company of Oklahoma. Prefiled Testimony December 16, 2002 Oral Testimony May 22, 2003
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas. Prefiled Testimony September 4, 2001
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the Development of Competition in Electric Markets and the Impact on Retail Consumers in Arkansas. Prefiled Testimony September 29, 2000
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the establishment of uniform Policies and guidelines for a Standard Service Package. Staff Proposal and Comments June 13, 2000 Reply Comments July 21, 2000 Sur reply Comments August 2, 2000 Oral Testimony August 8, 2000 Petition for Rehearing Rebuttal Testimony November 15, 2000 Oral Testimony November 29, 2000
Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the determination of the merits of declaring retail billing services competitive effective At the start of retail open access. Oral Testimony June 27, 2000 Prefiled Rebuttal Testimony June 23, 2000 Prefiled Testimony June 16, 2000 Oral Testimony May 10, 2000

Resume of Daniel E. Peaco
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Arkansas Public Service Commission	General Staff of the AK Public Service Comm.	Testimony regarding the minimum filing requirements for market power studies to be filed by the Arkansas Electric utilities and affiliated retail companies. Oral Testimony June 1, 2000
Amer. Arb. Assoc. No. 50T 198 00197-98	Vermont Joint Owners	Testimony regarding economic damages resulting from alleged breach of a long-term purchase power agreement between Hydro-Quebec and Vermont utilities (VJO). Oral Testimony May 25, 2000 Prefiled Rebuttal Testimony February 10, 2000 Prefiled Testimony August 13, 1999
Rhode Island Energy Facilities Siting Board	Indeck-North Smithfield, L.L.C.	Testimony regarding economic, reliability and environmental need for power in the Rhode Island and New England power markets regarding the need for new, merchant power facility. Prefiled Testimony August 16, 1999 Oral Testimony August 17, 2000 Prefiled Testimony January 26, 2001 Oral Testimony March 23, 2001
Civil Litigation Maine Superior Court Docket No. CV-98-212	Central Maine Power Co.	Factual and expert witness in litigation regarding pricing provisions of a purchased power agreement between Central Maine Power and Regional Waste Systems. Deposition Testimony May 5, 1999
Connecticut Energy Facilities Siting Council Docket No. 190	PDC – El Paso Meriden LLC	Testimony regarding economic, reliability and environmental need for power in the Connecticut and New England power markets regarding the need for new, merchant power facility. Prefiled Testimony January 25, 1999
Rhode Island Energy Facilities Siting Council Docket No. SB-98-1	R. I. Hope Energy, L. P.	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony November 4, 1998 Prefiled Testimony October 30, 1998
Massachusetts Energy Facilities Siting Council Docket No. EFSB-91-101A	Cabot Power Corp.	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony May 27, 1998 Prefiled Testimony August 15, 1997
Massachusetts Energy Facilities Siting Council Docket No. EFSB-97-2	ANP Blackstone Energy	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony April 6, 1998 Prefiled Testimony January 23, 1998
Massachusetts Energy Facilities Siting Council Docket No. EFSB-97-1	ANP Bellingham	Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility. Oral Testimony February 3, 1998 January 28, 1998

Summary of Testimony Appearances for John G. Athas

Docket No.	Date	Name
Various	1983-1991	Miscellaneous Dockets before the Connecticut DPUC, Connecticut Siting Council, Massachusetts DPU, and Massachusetts Energy Facility Siting Council on Generation and Integrated Resource Planning topics
-----	1993	Connecticut DPUC Docket on Retail Wheeling and Transmission Access
-----	1994	Massachusetts DPU Docket on Electric Industry Restructuring
91-04-05	August, 1991	Application of Connecticut Natural Gas Corp. for Approval of New and Modified Tariffs
94-05-13	July 13, 1994	Application of the Connecticut Light and Power Company and Kimberly-Clark Corporation for Approval of a Special Rate Contract ⁵⁶ for Provision of Firm Service to Kimberly-Clark Corporation
93-12-34	April 27, 1994	Application of the Connecticut Light and Power Company and Hamilton Standard for Approval of Special Electric Rate Contract
99-08-03	August, 1999	Application of Select Energy, Inc. for an Electric Supplier License
08-07-01*	September, 2008	DPUC Review of Connecticut 2008 Comprehensive Electric Procurement Plan (integrated Resource Plan)
09-05-02*	July, 2009	DPUC Review of Connecticut 2009 Comprehensive Electric Procurement Plan (Integrated Resource Plan)
10-02-07*	June, 2010	DPUC Review of Connecticut 2010 Comprehensive Electric Procurement Plan (Integrated Resource Plan)
NSPI-P-202/ M40175	August, 2011	An Application by NewPage Port Hawkesbury Corp. and Bowater Mersey Paper Company Ltd for Amendments to Nova Scotia Power's Load Retention Tariff and for a Load Retention Rate
11-069-U**	October, 2011	In the Matter of Entergy Arkansas, Inc.'s Request for Approval of the Acquisition of the Hot Spring Plant to Serve its Retail Customers
CAUSE NO. PUD 201100186**	February, 2012	Application of Oklahoma Gas & Electric Company for an Order of the Commission approving a Special Contract with Oklahoma State University and a Wind Energy Purchase Agreement
M04892**	May, 2012	Main Computer Centre Upgrade (Capital Improvements Data Centre)
NSPI-P-203/ M04862	June, 2012	An Application by Pacific West Commercial Corporation and Nova Scotia Power Inc. for a Load Retention Rate
12-012-U**	June, 2012	In the Matter of Arkansas Electric Cooperative Corporation for Approval of the Acquisition of the Hot Spring Generating Facility Near Malvern, Arkansas
U-17026**	August, 2012	In the Matter of the application of Indiana Michigan Power Company for a certificate of necessity pursuant to MCL 460.6s and related accounting authorizations.
IURC Cause No. 44182	August, 2012	In the Matter of the application of Indiana Michigan Power Company requesting from the Commission, 1) A Finding that the Life Cycle Management program for the Donald C. Cooke Nuclear Plant is Reasonable and Necessary, 2) Approving of Cost and Schedule, 3) Authorizing Recovery through a periodic Rate Adjustment Mechanism, 4) Granting I&M Authority to Defer Costs and 5) Grant I&M future Rate Relief as may be Necessary and Appropriate.
12-038-U	September, 2012	In the Matter of Entergy Arkansas, Inc.'s Request for approval of certain wholesale base load capacity to serve EAI customers and a proposed rider recovery mechanism for these and other capacity costs.
12-067-U	October, 2012	In the Matter of the Application of Oklahoma Gas and Electric Company for an Order Approving a Temporary Surcharge to Recover the Costs of a Renewable Wind Generation Facility
NSPI-P-128.13	January, 2013	In the Matter of an Application by Nova Scotia Power Incorporated for Approval of its 2013 Annual Capital Expenditure Plan
NSPI-P-128.13	January, 2013	In the Matter of an Application by Nova Scotia Power Incorporated for Approval of Capital Expenditure for 2013 for South Canoe Wind Project - CI#42127 for \$93,091,536
13-033-U	August, 2013	IN THE MATTER OF THE PETITION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR A DECLARATORY ORDER FINDING THAT CERTAIN RENEWABLE WIND ENERGY PURCHASE AGREEMENTS ARE PRUDENT, AND WIND ENERGY PURCHASE AGREEMENTS ARE ENERGY ONLY CONTRACTS ELIGIBLE FOR COST RECOVERY THROUGH THE ENERGY COST RECOVERY RIDER
Case No. PUE-2013-00088	February, 2014	Commonwealth of Virginia ex re L State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to § 56-59.7 et seq. 4 the Code of Virginia
NSPI-P-128.13	February, 2014	In the Matter of an Application by Nova Scotia Power Incorporated for Approval of its 2014 Annual Capital Expenditure Plan

* In these Dockets the Filing of the IRP Plans served as the basis for cross examination topics for Mr. Athas

Jointly Considered		
CAUSE NO. PUD 200500516	June 27, 2007	APPLICATION OF PUBLIC SERVICE COMPANY OF OKLAHOMA FOR A DETERMINATION THAT ADDITIONAL ELECTRIC GENERATING CAPACITY WILL BE USED AND USEFUL
CAUSE NO. PUD 200600030	June 27, 2007	APPLICATION OF PUBLIC SERVICE COMPANY OF OKLAHOMA FOR A DETERMINATION THAT ADDITIONAL BASELOAD GENERATING CAPACITY WILL BE USED AND USEFUL
CAUSE NO. PUD 200700012	June 27, 2007	IN THE MATTER OF THE APPLICATION OF OKLAHOMA GAS AND ELECTRIC FOR AN ORDER OF THE COMMISSION GRANTING PRE-APPROVAL TO CONSTRUCT RED ROCK GENERATING FACILITY AND AUTHORIZING A RECOVERY RIDER

** In these Proceedings Mr. Athas filed testimony yet was not asked to appear for cross examination

Summary of Testimony Appearances for Mary Neal

Docket No.	Jurisdiction	Date	Name
NSUARB-NSPI-P-128.12(ACE) / M04600	Nova Scotia, Canada	January 13, 2012	In the Matter of an Application by Nova Scotia Power Incorporated for Approval of its Annual Capital Expenditure Plan for 2012
3270-UR-118	Wisconsin, USA	August 27, 2012	Application of Madison Gas and Electric Company for Authority to Change Electric and Natural Gas Rates
RIPUC 4485	Rhode Island, USA	March 25, 2014	The Narragansett Electric Company D/B/A National Grid 2014 Electric Retail Rate Filing

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Please provide (identifying the contributors referenced): Details of the experience of the
9 contributors to the LCA Report with respect to developing generation, transmission and
10 financial planning criteria for electric utilities generally and specifically for utilities that
11 predominantly rely on hydro—electric based generation.

12
13 **RESPONSE:**

14 Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all
15 contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, John Athas
16 and Richard Hahn. Each of these individuals has extensive utility management experience with
17 emphasis on the planning disciplines cited, Mr. Peaco with Pacific Gas & Electric and Central
18 Maine Power, Mr. Athas with Northeast Utilities, and Mr. Hahn with Boston Edison/NSTAR. Mr.
19 Peaco's work at PG&E included planning for PG&E's hydropower system and planning PG&E's
20 system in coordination with the hydropower resources in the Pacific Northwest. Mr. Peaco's
21 work with Central Maine Power included planning for that Company's hydropower system.
22 Messrs. Peaco, Athas and Hahn all worked with utilities in New England that have interactions
23 with Hydro Quebec.

SUBJECT: Experience and Qualifications**REFERENCE:****PREAMBLE:****QUESTION:**

Details of the experience of the contributors to the LCA Report with respect to negotiating and drafting long term power sales agreements and energy exchange agreements. Please specify whether such experience relates to counterparties within the MISO region, or specify the applicable region.

RESPONSE:

Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, John Athas, Richard Hahn, and Stan Faryniarz. Much of our collective contract experience involves contracts made in the New England, New York and PJM systems, markets that are structured similarly to the MISO Market.

LCA does have recent experience in the MISO market. We recently completed a multi-year engagement with the Arkansas Public Service Commission General Staff has regarding Entergy Arkansas ("EAI") withdrawal from the Entergy System Agreement (among the Entergy Operating Companies) and evaluation of alternative operating options, leading to a decision to join MISO. La Capra Associates, principally Mr. Peaco, was involved in analyzing the detailed operations under MISO and other options and determining if there were benefits for EAI. The fundamental understanding of MISO's transmission operations, governance structure, energy, capacity and ancillary services requirements and markets was a major component of the project. MISO representatives were actively engaged in the process of recruiting EAI and Entergy. In addition Mr. Hahn has had numerous projects for clients in Wisconsin, Michigan,

1 and North Dakota where specific evaluations of the MISO markets were required as part of the
2 review of resource investment decisions by local utilities.

3

4

SUBJECT: Experience and Qualifications**REFERENCE:****PREAMBLE:****QUESTION:**

Details of the experience of the contributors to the LCA Report with respect to hydroelectric system operation and the effects on water regime either project specific or on a system wide basis.

RESPONSE:

Mr. Peaco has conducted economic planning on PG&E's hydropower system during a time when much of the system was subject to competitive relicensing challenges. His work at PG&E also included system planning considering the interactions between the PG&E and the Pacific Northwest systems. At Central Maine Power, Mr. Peaco conducted planning studies for that company's hydropower relicensing program and hydropower project development, as well as economic evaluation of a proposed 1000 MW power contract and transmission line with Hydro Quebec. During his tenure at La Capra Associates, he has conducted several hydropower asset valuation assessments. Mr. Peaco obtained his undergraduate and graduate degrees in Civil Engineering with Water Resource System Analysis concentration.

1 **SUBJECT: Experience and Qualifications**

2

3 **REFERENCE:**

4

5 **PREAMBLE:**

6

7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to the calculation
9 of drought probability.

10

11 **RESPONSE:**

12 Please see LCA's response to MH/LCA-002c.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to accounting and
9 financial reporting for Canadian regulated utilities (please specify the professional accounting
10 designations held by LCA contributors).

11
12 **RESPONSE:**

13 LCA is not an accounting firm and does not have individuals with professional accounting
14 designations. LCA does have project experience with Canadian utilities in Nova Scotia, New
15 Brunswick, Quebec and Ontario.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to corporate
9 finance (please specify if LCA contributors have a Chartered Financial Analyst designation).

10
11 **RESPONSE:**

12 Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all
13 contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, John Athas
14 and Richard Hahn. The LCA team has extensive experience with utility industry financial
15 analysis for regulated utilities and merchant generation.

16 LCA's project team does not include any individuals with a Chartered Financial Analyst
17 designation.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to cost of service
9 rate setting approaches as are utilized by Manitoba Hydro.

10
11 **RESPONSE:**

12 No one at LCA has previously worked on a Manitoba Hydro rate case. We have review
13 materials from prior MH rates cases as part of this engagement.

14 Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all
15 contributors to the LCA Report. The LCA team includes several individuals with extensive
16 experience in cost of service ratemaking practices across the US and in Canada for vertically
17 integrated investor-owned utilities and public utilities (municipal and cooperative utilities).

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to financial
9 modeling, including experience with software other than Excel, Windows-based operating
10 systems and databases.

11
12 **RESPONSE:**

13 Several LCA Report contributors conduct financial modelling. Such work conducted at La Capra
14 Associates is generally based in Excel. However, we are exposed to other platforms through
15 our client work and the prior work history of current employees. Please refer to LCA's response
16 to MH/LCA-001b which includes complete resumes for all contributors to the LCA Report.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Details of the experience of the contributors to the LCA Report with respect to studying
9 requests for transmission service and interconnection service.

10
11 **RESPONSE:**

12 Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all
13 contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, Richard
14 Hahn, Dimitrios Kordonis, and Stan Faryniarz.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Please provide (identifying the contributors referenced): Details of the experience of the
9 contributors to the LCA Report regarding climate change and impacts on hydroelectric
10 generation systems.

11
12 **RESPONSE:**

13 The issue of the potential implications of climate change and its impacts on hydropower
14 production has been raised in prior hydropower case work in which La Capra Associates has
15 been engaged. Daniel Peaco and Daniel Koehler reviewed the evidence on climate change and
16 its implications on hydropower production offered in that case. Messrs. Peaco and Koehler
17 conducted LCA's review of MH's and MNP's information on climate change in our review of
18 those issue in this NFAT proceeding.

SUBJECT: Experience and Qualifications**REFERENCE:****PREAMBLE:****QUESTION:**

Please provide (identifying the contributors referenced): Details of the experience of the contributors to the LCA Report with respect to resource planning evaluations and decisions for public electric utilities generally and specifically for utilities that predominantly rely on hydro-electric based generation;

RESPONSE:

Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, John Athas and Richard Hahn.

The following is the summary of our resource planning experience:

Our firm has worked on several types of projects in power resource planning and evaluation. Some of the projects consist of conducting formal Integrated Resource Planning (IRP) analysis directly for utility clients and, for public sector or regulatory clients (such as the Connecticut Energy Advisory Board ("CEAB")). CEAB is a multi-stakeholder Board that during 2008 through 2010 had the responsibility to review and modify the joint procurement plan of the state's investor-owned utilities, which included IRP analyses. In some of our IRP projects the La Capra Associates team was responsible for conducting the analysis independently, while others involved our team and expert witness reviewing and critiquing the IRP analyses developed by an electric utility. Other projects included evaluating transmission projects by developing and comparing them to alternative generation and demand-side management alternatives, referred to as Non-Transmission Alternatives or NTAs. The principles of analysis in IRP and NTAs are similar in terms of determining the attributes of different resources to compare resources or portfolios or resources in terms of a number of criteria, including economics, reliability, environmental impact and economic development.

Our IRP experience demonstrates depth and wide geographic diversity, with engagements in several states including Arkansas, Maine, Vermont, Connecticut, Georgia, Oklahoma, Delaware, and Wisconsin, as well as in Nova Scotia. Separate from these IRP and NTA projects, our firm and specifically the experts put forward in this submittal, have lead numerous projects where the topics are specific resource alternatives being proposed by utilities. The understanding of these alternatives is the foundation to Power Resource Planning and Economic Evaluations. Representative examples of these projects are provided in a later area in this section of the submittal.

Conducting IRP Studies. La Capra Associates has conducted IRP studies regularly for utility clients for more than a decade. In these engagements we designed the IRP and analytic process from identification of resource needs and the underlying goals of the organization to fulfill its long term planning needs. We also provided detailed written reports documenting our work and clearly outlining the client's action plans for the future. Our clients have found our writing style to be clear, concise and effective. Additionally, we are frequently retained as experts in IRP and have provided supporting testimony for clients as needed.

It is La Capra Associates' practice and policy to work closely with our clients to formulate and outline a work plan that is consistent with their needs. Our team develops processes and metrics based on client interviews and identification of key objectives necessary to make informed decisions that are consistent with the applicable regulatory landscape.

Our detailed analytical effort is based on underlying market fundamentals and have simulated market performance (including using stochastic methods) when needed. We have employed market modeling in our IRP work, using AURORA market modeling software (and other tools) to assess the robustness of utility resource plans under scenario and probability based approaches, including the use of Monte Carlo risk assessment techniques.

Analyzing, Reviewing and Critiquing Utility IRP Filings. La Capra Associates is regularly engaged in reviewing utility IRPs. The clients for many of our firm's IRP engagements are consumer advocates, commission staff, government agencies or other interested parties, such as environmental advocacy groups. In an IRP engagement role, both principals and staff review reports and filings of the Companies in question, request information supporting the IRP, and often meet with the utilities in technical sessions open to all intervening parties. The review of assumptions, analytic techniques and models, and the results used to make informed IRP decisions are all very detailed. In these projects, the utility Companies are frequently asked to make changes to their modeling or assumptions and have actually modeled additional cases at the request of our team.

The team has performed process verification analyses and modeling that uncovered mistakes, found areas of changes that would improve the analysis and/or additional options or strategies that should be addressed before the IRP plan was accepted, and in some cases resulted in the

1 utility submitting a revised Resource Plan. Most of these engagements included filing expert
2 testimony and providing regulatory support to our client. We note that in even in IRP review
3 engagements, several cases required that we employ our own power market and production
4 cost modeling techniques utilizing AURORA's robust market modeling features to fully
5 understand key issues and identify key drivers under a variety of supply and demand side
6 resource portfolio assumptions.

7
8 Our experience in this engagement category covers utilities in Oklahoma, Connecticut, Nevada,
9 Utah, Wisconsin, Georgia, Delaware, Hawaii and currently in Arkansas.

10
11 *Conducting, Analyzing, Reviewing and Critiquing IRP-Like Studies.* Many of La Capra
12 Associates' engagements requiring our IRP expertise are not necessarily part of a formal IRP
13 filing. In addition to meeting the primary objective for each project, La Capra Associates
14 essentially performs some subset of the steps involved in a full IRP effort, and as such we refer
15 to these projects as "IRP-like" studies.

16
17 An example of a La Capra Associates IRP-like study is when we have been engaged to provide
18 full analyses of non-transmission alternatives ("NTAs") for a utility's transmission planning
19 process. While these projects are not labeled as an IRP, the work is fundamentally similar to IRP
20 in terms of the scope of analysis, policy considerations, and action plans.

21
22 In NTA engagements, the La Capra Associates teams develops the array of possible supply-side
23 generation and demand-side management options that can eliminate the need for a
24 transmission project. The transmission project is then compared to alternative portfolios of
25 resources which were similar to resource options within formal IRP studies. NTA analyses
26 includes market modeling with AURORA software (or use of other market models and
27 techniques), economic and financial evaluations, and environmental impact determinations in
28 the forms of emissions.

29
30 We have been retained to perform detailed work involved in NTA analysis in Maine, Vermont,
31 North Carolina, Wisconsin and Connecticut.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Please provide (identifying the contributors referenced): Details of the experience of the
9 contributors to the LCA Report with respect to emerging energy technologies in electric utilities
10 generally and specifically for utilities that predominantly rely on hydro-electric based
11 generation;

12
13 **RESPONSE:**

14 Please refer to LCA's response to MH/LCA-001b which includes complete resumes for all
15 contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco, John Athas,
16 Alvaro Pereira, and Carolyn Gilbert. These individuals and our firm have conducted several
17 renewable and emerging technology assessments in New England, New York, and the Southeast
18 and Midwest US, including within the MISO footprint.

1 **SUBJECT: Experience and Qualifications**

2
3 **REFERENCE:**

4
5 **PREAMBLE:**

6
7 **QUESTION:**

8 Please provide (identifying the contributors referenced) : Details of the experience of the
9 contributors to the LCA Report with respect to energy and carbon policy policy in electric
10 utilities generally and specifically for utilities that predominantly rely on hydro–electric based
11 generation;

12
13 **RESPONSE:**

14 Please refer to LCA’s response to MH/LCA-001b which includes complete resumes for all
15 contributors to the LCA Report. In particular, refer to the resumes of Daniel Peaco and John
16 Athas.

17 Please refer to LCA’s response to MH/LCA-002k, which outlines our considerable experience
18 with resource planning studies. Energy and carbon policy have been considerations in virtually
19 every such study conducted over the past decade.

1 **SUBJECT: Pathways**

3 **REFERENCE: Technical Appendix 3A; Page 3A-25**

5 **PREAMBLE:** “MH’s fifteen alternative development plans are each a portfolio of
6 resource additions combined to meet energy and capacity requirements over 78
7 years, designed to meet a theme (e.g., all gas, max wind, all hydro)..... The analysis
8 does not evaluate the more specific case of this option as compared to the set of
9 commitments that would need to be made now in the alternative, for example in
10 the All Gas plan.”

12 **QUESTION:**

13 Please explain LCA’s understanding of the flexible pathways described in Chapter 14 of the
14 NFAT Submission in which pathway or option analysis and specific near-term commitment
15 decisions associated with the various plans are presented.

17 **RESPONSE:**

18 LCA understands the pathways concept described in Chapter 14 of the NFAT analysis. We agree
19 that this structure is a useful framework for decision making in this context. However, MH did
20 not present any quantitative analysis of the decision tree branches in Chapter 14. The
21 quantitative analysis provided by MH was limited to the 15 alternative development plans.

1 **SUBJECT: Pathways**

2
3 **REFERENCE: Technical Appendix 3A; Page 3A-25**

4
5 **PREAMBLE:** “MH’s fifteen alternative development plans are each a portfolio of
6 resource additions combined to meet energy and capacity requirements over 78
7 years, designed to meet a theme (e.g., all gas, max wind, all hydro)..... The analysis
8 does not evaluate the more specific case of this option as compared to the set of
9 commitments that would need to be made now in the alternative, for example in
10 the All Gas plan.”

11
12 **QUESTION:**

13 Please confirm that evaluation in Chapter 14 of the NFAT submission provides the ability to
14 switch amongst plans and provides the value of flexibility.

15
16 **RESPONSE:**

17 The pathways concept presented in Chapter 14 explains the fact that each development plan is
18 a series of decisions, not a single decision to implement a specific plan for the entire study
19 period. Chapter 14 does not contain a quantitative evaluation of that optionality.

1 **SUBJECT: Transmission**

2
3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-6**

4
5 **PREAMBLE:** On Page 8-6 of the LCA report, LCA notes that “MISO conducts the
6 operations horizon calculations for the MH to US interface since it has been
7 contracted by MH to administer its Open Access Transmission Tariff.” The 2013
8 Transmission Interface Capability Report describes the responsibility for the
9 calculation of limits and on pages 10-11, states that Manitoba Hydro’s System
10 Performance department performs seasonal studies and is responsible for
11 calculating seasonal operating limits as well as total transmission capability and
12 transmission reliability margins every hour. These values are used to post
13 available transmission capability which MISO then uses, along with outage
14 information to calculate ATC on hourly, weekly and monthly basis.

15
16 **QUESTION:**

17 Please confirm whether LCA is aware that MISO is only contracted to perform specified
18 functions related to the administration of the Open Access Transmission Tariff for Manitoba
19 Hydro.

20
21 **RESPONSE:**

22 LCA’s statement relied on MH’s Available Transfer Capability Implementation Document
23 (ATCID),¹ which describes the functions that MISO conducts for MH and states in a Section
24 entitled Operations Planning:

25

¹ http://www.oasis.oati.com/woa/docs/MHEB/MHEBdocs/ATCID-MOD28-JAN_12_2012.pdf p.5

1 *“Manitoba Hydro Electric Board (MHEB) has contracted out the administration of*
2 *the Open Access Transmission Tariff (OATT) to the Midwest ISO (MISO). The*
3 *Midwest ISO calculates the ATC for each of the Manitoba Hydro interfaces and posts*
4 *the available short term ATC for the each of the Manitoba Hydro interfaces on the*
5 *Manitoba Hydro OASIS site called the “Manitoba Hydro Interface ATC Tool”. In order*
6 *for MISO to perform the ATC calculations, Manitoba provides inputs to MISO for TTC*
7 *and TRM calculations hourly for the first seven (7) days, daily ATC for days 8 through*
8 *31 and monthly ATC for months 2 through 36.”*

1 **SUBJECT: Transmission**

2
3 **REFERENCE: Technical Appendix 8 - Transmission ; Page 8-6**

4
5 **PREAMBLE:** On Page 8-6 of the LCA report, LCA notes that “MISO conducts the
6 operations horizon calculations for the MH to US interface since it has been
7 contracted by MH to administer its Open Access Transmission Tariff.” The 2013
8 Transmission Interface Capability Report describes the responsibility for the
9 calculation of limits and on pages 10-11, states that Manitoba Hydro’s System
10 Performance department performs seasonal studies and is responsible for
11 calculating seasonal operating limits as well as total transmission capability and
12 transmission reliability margins every hour. These values are used to post
13 available transmission capability which MISO then uses, along with outage
14 information to calculate ATC on hourly, weekly and monthly basis.

15
16 **QUESTION:**

17 Given the description provided in the 2013 Transmission Interface Capability Report, please
18 provide the basis for the statement that MISO conducts the operations horizons calculations for
19 the Manitoba Hydro to U.S. interface.

20
21 **RESPONSE:**

22 The basis for the statement is provided in LCA’s response to MH/LCA-039a.

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-9**

5 **PREAMBLE:** On page 8-9 of the LCA report, LCA states that , “...MH may up to 105
6 MW...”. Manitoba Hydro assumes LCA meant to say, “...MH may import up to 105
7 MW...”. On page 13 of the 2013 Transmission Interface Capability Report, Table 3
8 shows 105 MW being imported on the northern 115 kV lines I1F and I2F. This
9 represents wheeling of 105 MW from northern Saskatchewan generation to
10 southern Saskatchewan load on R7B, R25Y and P52E and there is no additional
11 105 MW non-firm import capability.

13 **QUESTION:**

14 If so, please confirm whether LCA maintains that statement in light of the explanation given in
15 Table 3 on page 13 of the 2013 Transmission Interface Capability Report.

17 **RESPONSE:**

18 The 2013 Transmission Interface Capability Report Table 1, page 10, (shown below) indicated
19 that the MH-Saskatchewan FTC is 105 MW, which was the basis for the LCA statement, which
20 differs from the 0 MW value reported in the NFAT submission in Chapter 5 (page 16). Due to
21 the conflict in these two sources, LCA qualified the reference to the 105 MW rating. This
22 statement was intended to refer to the 105 MW in Table 1, not an additional 105 MW of
23 non-firm import capability.

24 The explanation offered in the Preamble (second and third sentences) is not included in the
25 2013 Transmission Interface Capability Report. LCA understands the explanation to be based
26 on an assumption that LCA was assuming 105 MW and another 105 MW non-firm, which was
27 not the case.

Interface	FTC Export	FTC Import
MH-USA D602F – 500 kV L20D – 230 kV R50M – 230 kV G82R – 230 kV	2100	700
MH-Ontario K21W – 230 kV K22W – 230 kV	200	0
MH-Saskatchewan R7B – 230 kV R25Y – 230 kV P52E – 230 kV	150	0
MH-Saskatchewan I1F – 115 kV I2F – 115 kV	0	105

Figure 1 MH Interconnection Firm Transfer Capabilities¹

¹ SP-061 2013 Transmission Interface Capability Report OASIS Version p.10

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 - Transmission ; Page 8-43**

5 **PREAMBLE:** On page 8-43, LCA indicates that "...it is unclear whether MH evaluates
6 the existing TSRs for retirement."

8 **QUESTION:**

9 Please explain if LCA believes a Transmission Provider should conduct such an evaluation, and if
10 so, why?

12 **RESPONSE:**

13 LCA's statement was not limited to the MH Transmission Business unit, rather to refer to the
14 entirety of the planning for Keeyask and Conawapa conducted by MH. However, the
15 Transmission provider makes a number of assumptions in conducting the studies that have
16 bearing on the need for addition transmission facilities that will incur costs that will be borne by
17 consumers. One assumption that is an important determinant of the need for the transmission
18 proposed is the assumption on existing TSRs. The transmission provider should review existing
19 TSRs for their validity, as should the customer in making the request. This type of evaluation is
20 needed to identify whether active TSRs expire, releasing transmission capability for use by
21 other transmission service requests. The overall cost of transmission has bearing on the total
22 cost of the Preferred Development Plan and it's a factor in the determinations before the NFAT
23 Panel. To date, MH has not provided documentation supporting the value used for the existing
24 TSRs in the analysis or the basis for assuming continuation of all existing TSRs is a reasonable
25 assumption.

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-52**

5 **PREAMBLE:** On page 8-52, LCA indicates that “if there is evidence to warrant
6 significant investigations, then, NERC will initiate the process to determine if
7 certain standards were violated. In the event of a violation, the NERC’s Board of
8 Trustees Compliance Committee has the obligation to work closely with the
9 implicated user. The perceived violater is given due process but after a series of
10 appeals and negotiations has been completed a notice of penalty could be levied
11 against those who did not comply with the said standards.”

13 **QUESTION:**

14 Has LCA reviewed the Reliability Standards Regulation under the The Manitoba Hydro Act,
15 including Schedule 1 consisting of the NERC Compliance Monitoring and Enforcement Program?

17 **RESPONSE:**

18 LCA has reviewed the NERC Compliance Monitoring and Enforcement Program Province of
19 Manitoba, however, that review does not constitute a legal review.

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-52**

5 **PREAMBLE:** On page 8-52, LCA indicates that “if there is evidence to warrant
6 significant investigations, then, NERC will initiate the process to determine if
7 certain standards were violated. In the event of a violation, the NERC’s Board of
8 Trustees Compliance Committee has the obligation to work closely with the
9 implicated user. The perceived violater is given due process but after a series of
10 appeals and negotiations has been completed a notice of penalty could be levied
11 against those who did not comply with the said standards.”

13 **QUESTION:**

14 If so, does LCA agree that the process described by LCA on page 8-52 would not apply to
15 Manitoba Hydro?

17 **RESPONSE:**

18 Section 3(1) of the Reliability Standards Regulation document¹, authorizes the MRO and NERC
19 to monitor compliance with reliability standards adopted for Manitoba. LCA understands that
20 the PUB also has a defined role in enforcement. LCA’s report includes information on NERC’s
21 process in the event of a violation given the authority established in Section 3(1).²

23 LCA is not in a position to make a determination on the applicability of the process specifically.
24 The question does not refer to a specific citation to the section of the Reliability Standards
25 Regulation or Schedule 1. The statement cites from page 8-52 was not intended to make

¹ <http://web2.gov.mb.ca/laws/regs/pdf/h190-025.12.pdf> p.3

² <http://www.nerc.com/gov/bot/BOTCC/Related%20Files/5-BOTCC%20Mandate%20APPROVED%20May%202012.pdf>

- 1 specific reference to a Manitoba-specific enforcement process, rather to point to the processes
- 2 that NERC has established more generally.

3

4

1 **SUBJECT: Transmission**

2
3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-55**

4
5 **PREAMBLE:** In several places on pages 8-55 through 8-59, LCA takes a position that
6 MH must have a pole spare in order to not violate NERC standards. For example,
7 on page 8-55, LCA states that “...One of those events is the loss of single pole (DC)
8 line that cannot result in loss of demand or curtailment of firm transfers or any
9 cascading outages within the Manitoba Hydro System and neighbouring areas.
10 MH must design and operate its system to withstand a loss of a single pole of one
11 of the Bipoles and return the system to a stable state.” On Page 8-56, LCA states,
12 “...Therefore, 700 MW of northern generation connected to the NCS is considered
13 non-firm when the loss of a single pole, include in the NERC Reliability Standards,
14 is followed.” Again on page 8-58, LCA notes that there will 725 MW of non-firm
15 transmission after Conawapa is added if a loss of a single pole is considered. Note
16 b from NERC TPL-002-0b currently says, “Planned or controlled interruption of
17 electric supply to radial customers or some local Network customers, connected
18 to or supplied by the Faulted element or by the affected area, may occur in
19 certain areas without impacting the overall reliability of the interconnected
20 transmission systems. To prepare for the next contingency, system adjustments
21 are permitted, including curtailments of contracted Firm (non-recallable reserved)
22 electric power Transfers.

QUESTION:

When note b from NERC TPL-002-0b is considered, is LCA still of the opinion that curtailment of firm transfers is not permitted following loss of a single pole (DC) to prepare for the next contingency?

RESPONSE:

LCA now has additional information from MH from its rebuttal testimony and oral testimony at hearings of March 18, 2014 on the measures that it intends to use to assure that the curtailment of firm transfers does not lead to interruption of domestic or firm export customers. Based on MH's representations that NERC will certify that these measures will not risk such customer interruptions, LCA agrees that firm note b would allow interruption of firm transfers in that circumstance.

1 **SUBJECT: Transmission**

2
3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-55 and 8-59**

4
5 **PREAMBLE:** In several places on pages 8-55 through 8-59, LCA takes a position that
6 MH must have a pole spare in order to not violate NERC standards. For example,
7 on page 8-55, LCA states that “...One of those events is the loss of single pole (DC)
8 line that cannot result in loss of demand or curtailment of firm transfers or any
9 cascading outages within the Manitoba Hydro System and neighbouring areas.
10 MH must design and operate its system to withstand a loss of a single pole of one
11 of the Bipoles and return the system to a stable state.” On Page 8-56, LCA states,
12 “...Therefore, 700 MW of northern generation connected to the NCS is considered
13 non-firm when the loss of a single pole, include in the NERC Reliability Standards,
14 is followed.” Again on page 8-58, LCA notes that there will 725 MW of non-firm
15 transmission after Conawapa is added if a loss of a single pole is considered. Note
16 b from NERC TPL-002-0b currently says, “Planned or controlled interruption of
17 electric supply to radial customers or some local Network customers, connected
18 to or supplied by the Faulted element or by the affected area, may occur in
19 certain areas without impacting the overall reliability of the interconnected
20 transmission systems. To prepare for the next contingency, system adjustments
21 are permitted, including curtailments of contracted Firm (non-recallable reserved)
22 electric power Transfers.

23
24 **QUESTION:**

25 If so, please provide LCA’s justification for this opinion.

- 1 **RESPONSE:**
- 2 Please refer to LCA's response to MH/LCA-050a

1 **SUBJECT: Transmission**

2
3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-57**

4
5 **PREAMBLE:** On page 8-57, LCA makes the statement, “The MISO system in the
6 South might be able to provide coverage for such an event by the adequate
7 reserves and available capacity over the interconnection. MH did not provide any
8 documentation of information that exhibited this ability.”(emphasis added) MH
9 did provide several reports to LCA that demonstrated this technical ability
10 including the “2012 NERC TPL Assessment report”, “SPD2011_11 Keeyask
11 Conawapa Integrated transmission plan” and “1100 MW Group study report”. In
12 all of these studies, a bipole loss is a normal contingency that is included in
13 stability analysis. The Bipole loss satisfies Category B performance criteria in each
14 of those reports. For example, in Section 3.2.1.4 of the “SPD2011_11 Keeyask
15 Conawapa Integrated transmission plan” on page 42 it state, “...the system can
16 withstand a single bipole outage without immediately shedding any load for
17 nearly all operating scenarios.”

18
19 **QUESTION:**

20 Please explain why LCA believes the documentation provided did not demonstrate the technical
21 ability of the MISO system to provide adequate reserves.

22
23 **RESPONSE:**

24 The cited passage from page 8-57 is offer in a section which pertains to the full configuration of
25 the preferred development plan, including Keeyask, Conawapa, and the North-South Project.
26 The reports provided in the preamble do not include any information related to MISO’s ability

1 to provide adequate reserves when the MH system suffers a loss of a bipole in that system
2 configuration.

3 LCA assumes “2012 NERC TPL Assessment Report” refers to the document entitled “2012
4 System Performance Assessment, NERC Planning Standards TPL-001-0 through TPL-004-0”. This
5 assessment evaluates the system through 2022, with the addition of Bipole III and Keeyask, but
6 not Conawapa or the North-South Project. This report refers to a Special Protection System
7 (SPS) that rapidly reduces the HVdc power level (page 6), but does not detail the SPS
8 mechanism or any reliance on MISO reserves. LCA does not find any information in this report
9 that speaks to the availability of reserves in MISO during the study period addressed or, to the
10 point of the text on 8-57, to the reserves needed and available following the addition of
11 Conawapa and the North-South project. We also note that it is our understanding that the
12 addition of Bipole III allows substantially mitigates the need for reliance on MISO reserves for
13 the system configurations evaluated in this study.

14 LCA assumes “1100 MW Group study report” refers to the document entitled “Group Facility
15 Study” dated October 2, 2013. This study pertains to the transmission upgrades needed
16 between Manitoba and the U.S. for a 1100 MW TSR request. The study does not describe the
17 assumptions made, if any, on the use of MISO reserves as part of this analysis. LCA does not
18 find any information in this report that speaks to the need for or availability of reserves in MISO
19 following the addition of Conawapa and the North-South project.

20 The Integrated Transmission Plan for Keeyask and Conawapa generation was conducted to
21 assess the transmission options associated with the addition of Conawapa generation. This
22 report does discuss the use of reserves in MISO and describes concerns regarding the potential
23 for overreliance on those reserves. For example, the report includes:

- 24 • A discussion of the existing system’s frequent reliance on the reserve sharing pool as the
25 basis for adopting the largest valve group criterion (page 4);
- 26 • A discussion of MH’s disproportionate fraction of large contingencies in the Midwest
27 Contingency Reserve Sharing Group as a key consideration in sizing Bipole III and the
28 potential unacceptability of MH overreliance on those reserves (pages 19-20);

- A discussion of the large exports masking the impacts initially, with increasing domestic load exposure as load grows (page 20); and
- A discussion of under frequency load shedding tests and the ability of the system to withstand the loss of a single bipole, managed by subsequent system adjustments and or imports (page 42).

This last bullet item is the discussion cited in the Preamble. This includes reference to the use of system adjustments or import power, which LCA assumes refers to interruption of firm exports and reliance on MISO reserves among other system adjustments. However, the report does not provide information on the extent to which MISO reserves are used in these cases and does not discuss the availability of reserves at the assumed levels.

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-60**

5 **PREAMBLE:** On page 8-60, LCA states that “LCA updated MH’s transmission costs
6 related to the North to South project”.

8 **QUESTION:**

9 Please provide the detailed calculations and formulas that LCA used for updating the MH
10 estimated transmission costs and the source the LCA used for the updated MH estimated
11 transmission costs?

13 **RESPONSE:**

14 Please see attached CSI worksheets.

15 1. MH-053_Attach_1_SP-024 NFAT Confidential – Economic Cash Flows_Option 1

16 2. MH-053_Attach_2_SP-024 NFAT Confidential - Economic Cash Flows_Option 2

17 3. MH-053_Attach_3_Table NPV comparison for North-South project

18 The costs related to options 1 and 2 were taken from the Integrated Transmission Plan for
19 Keeyask and Conawapa generation document¹ adjusted for inflation to meet the \$2014 CDN
20 utilized in the economic cash flows provided by MH.

¹ The Cost for option 1 is included in the table on page 16 of the SP-054 NFAT Confidential – SPD2011_11_Keeyask_Conawapa_Transmission_Plan_final.pdf. The cost for option 2 is included in the table on page 19 of the same document.

SUBJECT: Transmission

REFERENCE: Technical Appendix 8 – Transmission; Page 8-61

PREAMBLE: On page 8-61, LCA provides a table showing the impact of changing the north-south transmission plan from Option 2a to either Option 1 or Option 2. The cost difference between Option 2 and Option 2a is approximately \$200 million in \$2011 (page 4 to 5 from SPD2011_11 Keeyask Conawapa Integrated transmission plan). The large NPV noted in the last column does not appear to be correct as the values are almost double the estimated \$200 million.

QUESTION:

Please provide all assumptions and work papers used to create Figure 8-30.

RESPONSE:

Figure 8-30 is incorrect. Please see below the updated figure:

Development Plans Studies by MH that include Conawapa G. S.						
Economic Value of Development Plan compared to Plan 1 All Gas - CPV/NPV at the end of specific portions of the Study						
Plans	Period				Transmission Exposure*	
	20 Years	35 Years	50 Years	78 Years	Option 1 Impact	Option 2 Impact
7 SCGT/C26	(\$2,508)	(\$686)	\$178	\$738	No impact	No impact
8 CCGT/C26	(\$2,633)	(\$716)	\$174	\$784	No impact	No impact
9 Wind/C26	(\$2,777)	(\$1,031)	(\$62)	\$531	No impact	No impact
10 K22/C29	(\$4,247)	(\$1,501)	(\$112)	\$806	(\$452)	(\$125)
11 K19/C31/250MW	(\$4,041)	(\$1,087)	\$264	\$1,215	(\$410)	(\$113)
12 K19/C31/750MW	(\$4,182)	(\$1,119)	\$365	\$1,360	(\$410)	(\$113)
13 K19/C25/250MW	(\$3,899)	(\$1,019)	\$374	\$1,295	(\$551)	(\$152)
14 K19/C25/750 (WPS)	(\$3,887)	(\$766)	\$714	\$1,696	(\$551)	(\$152)
15 K19/C25/750MW	(\$4,117)	(\$1,032)	\$445	\$1,427	(\$551)	(\$152)
* Impact on a present value from increased capital expenditures with the alternative transmission options						

The additional workpapers are included in the response for MH/LCA-053.

1 **SUBJECT: Transmission**

3 **REFERENCE: Technical Appendix 8 – Transmission; Page 8-80**

5 **PREAMBLE:** On page 8-80, LCA states “The surplus energy from Keeyask will
6 consume any available capability that exists today, either through firm or
7 opportunity sales, leaving only a small incremental piece for Conawapa.”

9 **QUESTION:**

10 How does La Capra consider growth in Manitoba Load, which reduces the energy available for
11 firm export, by 2031 for plans that have Conawapa deferred until then?

13 **RESPONSE:**

14 The data utilized for this analysis was taken from the economic cash flows provided by MH. The
15 economic cash flows were the results from various SPLASH runs, where the growth in Manitoba
16 load was considered.

17 Figures 8-45 and 8-46 denote the differences between different plans in 2031. The plans are the
18 following:

- 19 1. Plan 1 –All Gas
- 20 2. Plan 2 – K22/Gas
- 21 3. Plan 10 – K22/C29
- 22 4. Plan 13 – K19/C25/250 MW
- 23 5. Plan 15 – K19/C25/750 MW

24 The data for this analysis was acquired from SP-131 NFAT Confidential – REVISED Economic
25 Cash Flows Energy Exports V4 energy and revenue only.xls provided by MH. The table below
26 shows how the different benefits are calculated.

	Plan 1	Plan 2
Benefit of Keeyask	All Gas	K22/Gas
Benefit of Conawapa	K22/Gas	K22/C29
Benefit of 250 MW Interconnection	K22/C29	K19/C25/250 MW
Benefit of 750 MW Interconnection	K22/C29	K19/C25/750 MW
Incremental Benefit of 750 MW Interconnection over 250 MW	K19/C25/250 MW	K19/C25/750 MW

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1 **SUBJECT: Economic Analysis**

3 **REFERENCE: Technical Appendix 9A; Page. 9A-3**

5 **PREAMBLE:** "LCA staff reviewed the NFAT Submission along with material from
6 associated prior regulatory proceedings, including outside consulting reports."

8 **QUESTION:**

9 Please advise what materials were reviewed, and who directed you to review them. Were you
10 provided with the full record of prior regulatory proceedings or only selected items? If only
11 selected items, who selected them?

13 **RESPONSE:**

14 LCA has reviewed the materials handed out by PUB panel staff and advisors during meetings
15 between September 3rd to 5th in Winnipeg. These consisted of prior year's financial reports
16 (IFFs). LCA also reviewed material provided by the PUB panel staff and advisors via a DropBox
17 site, including MH IR responses and Board Orders in past rate cases.

18 LCA has also reviewed most of the reports, material from prior regulatory proceedings, and
19 other documents provided on the SharePoint site by MH.