BEFORE THE
RHODE ISLAND PUBLIC UTILITY COMMISSION

DOCKET NO. 4265

DIRECT TESTIMONY

OF

RICHARD S. HAHN

IN THE MATTER OF
NATIONAL GRID'S POWER PURCHASE AGREEMENT
WITH ORBIT ENERGY RHODE ISLAND, LLC
PURSUANT TO GENERAL LAWS § 39-26.1 *et seq*.

ON BEHALF OF THE

RHODE ISLAND DIVISION OF PUBLIC UTILITIES AND CARRIERS

July 20, 2011

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INTRODUCTION

Q. Please identify yourself for the record.

A. My name is Richard S. Hahn. I am a Principal Consultant for La Capra Associates. My business address is One Washington Mall, 9th floor, Boston, Massachusetts 02108.

Q. Mr. Hahn, please summarize your experience and qualifications.

A. I have a BSEE and an MSEE in power systems engineering, and an MBA degree. I am a Registered Professional Engineer in Massachusetts. I have worked in the electric utility business for more than 35 years. From 1973 to 2003, I worked at NSTAR Electric & Gas (formerly Boston Edison Company). I have held many technical and managerial positions in both regulated and unregulated subsidiaries covering all aspects of utility planning, operations, regulatory activities, and finance. In 2004, I joined La Capra Associates. Since then, I have worked on projects related to power procurement, resource planning, transmission, power procurement, generating asset valuations, analyzing market rules and prices, mergers, and litigation support. My resume is provided in Exhibit RSH-1.

Q. Have you previously prepared testimony before the Commission?

A. Yes. I filed direct and surrebuttal testimony in Docket No. 4227, NGRID's Standard Offer Service ("SOS") Procurement Plan for 2012. I filed direct and surrebuttal testimony in Docket No. 4149, NGRID's SOS Procurement Plan for 2011. In Docket No. 4111, the Town of New Shoreham Renewable Energy Project, I filed direct and surrebuttal testimony. In Docket No. 4065, the National Grid's ("NGRID's" or the "Company's") proposed rate increase, I filed direct and surrebuttal testimony. I also filed

direct and surrebuttal testimony in Docket No. 4041, NGRID's SOS procurement Plan for 2010. On April 23, 2009, I submitted comments on NGRID's accelerated procurement plan for Standard Offer Service ("SOS") power supplies, and appeared at the April 28, 2009 hearing in this proceeding. On April 8, 2009, I submitted direct testimony in Docket No. 4029 regarding the load forecast used in the justification of the Rhode Island Reliability Project. I have also testified before regulatory commissions in other states, as described in Exhibit RSH-1.

Q. What has been your experience relative to power supply procurement?

A. Most recently at La Capra Associates, as noted above, I have assisted the Division in reviewing NGRID's plans to procure SOS power supplies and comply with Rhode Island's Renewable Energy Standards ("RES"). I have also assisted the Pennsylvania Office of Consumer Advocate in reviewing the SOS procurement plans of several of Pennsylvania's Electric Distribution Companies, including PECO Energy, PPL Utilities, West Penn Power, Citizens Electric Company, and Wellsboro Electric Company. I was a leading member of La Capra Associates teams that served as the Independent Evaluator of a complex power contract between Consumers Energy and the Midland Cogeneration Venture, and have overseen the implementation of RFPs for long-term contracts between utilities and renewable energy facilities. During my career at NSTAR, I was responsible for integrated resource planning, energy supply planning, and wholesale power purchases and sales.

Q. What is the purpose of your testimony in this proceeding?

A. La Capra Associates, Inc. ("La Capra Associates") has been retained by the Division to review and comment on NGRID's power purchase agreement ("PPA") with Orbit Energy Rhode Island, LLC ("Orbit") dated May 26, 2011, which was filed with the Commission on June 22, 2011. This testimony presents the results of that review, and my conclusions and recommendations.

SUMMARY

Q. Can you summarize the results of your review and your conclusions and recommendations?

A. I recommend that the Commission approve NGRID's PPA with Orbit. This recommendation is based on the following conclusions that were developed after a review of the information provided during this proceeding:

- The project was competitively bid, which provides a greater level of assurance that Rhode Island ratepayers aren't paying too much.
- The project has attractive pricing for a renewable energy project. Its small size will cause a minimal impact on electric rates.
- The project is making beneficial use from a waste stream.
- There is little risk to ratepayers if the project does not perform as expected.
- The project will create jobs in Rhode Island.

DESCRIPTION OF THE ORBIT ENERGY FACILITY

Q. Please describe the Orbit Energy Facility.

A. The Orbit Energy Facility is a 3.2 MW anaerobic digester biogas project to be located at the Rhode Island Resource Recovery's Central Landfill in Johnston, Rhode Island. The anaerobic digester will utilize the proprietary High Solids Anaerobic Digester ("HSAD") technology to convert 120 tons per day of organic waste into methane. The methane will fuel two nominal 2.0 MVA diesel generator sets for a combined maximum (net) rating of 3.2 MW.

Q. What does NGRID intend to do with the products that it will purchase from Orbit if the PPA is approved?

A. Under the PPA, capacity attributable to the Orbit facility will be settled financially via a credit to the PPA price, and Orbit will retain that product. NGRID will purchase and take title to energy and RECs. The Company's filing does not explicitly state what it will do with these products. Under section 39-26.1-5 of the long-term contracting statute, the Company can re-sell the energy into wholesale markets and re-sell the RECs via a competitive bidding process. Any gain or loss on those re-sales shall be credited or charged to all distribution customers. This statute also allows the Company, subject to Commission approval, to re-sell the energy purchased from Orbit to its customers and to use the RECS purchased from Orbit to achieve compliance with Rhode Island's Renewable Energy Standard. I assume that the Company intends to avail itself of the former option and re-sell these products into competitive markets. I suggest that the Company affirm its intention.

OVERVIEW OF THE PROPOSED PPA

Q. Can you describe the Company's proposed PPA with Orbit?

A. The PPA is a 15-year contract for "bundled renewable energy" (energy, capacity and RECs) between the Company and Orbit with an option for an extension term. The pricing starts at 9.5 cents per kilowatt hour in 2013, escalating at 2 percent per year thereafter. The pricing is dependent on the interconnection costs which are still in development. The PPA is "unit contingent" meaning that the Company is only required to purchase bundled energy when it is delivered.

Q. How will the pricing of the PPA be affected by changes in the interconnection costs?

A. The PPA price will increase by 0.1 cents per kWh by each $200,000 by which the total interconnection costs increase up to $1,000,000. The maximum PPA price increase will be 0.5 cents for a total PPA price of 10 cents per kWh. National Grid's interconnection process will determine the interconnection price increase.

PROJECT SELECTION PROCESS

Q. How was the Orbit Project selected by NGRID?

A. The project was selected from NGRID's first solicitation for proposals from renewable energy developers to enter into long-term contracts for the purchase of capacity, energy and attributes from newly developed renewable energy resources under the Long-Term Contracting Standard for Renewable Energy (First Solicitation). The First Solicitation was issued on June 30, 2010 and NGRID received 8 bids of which Orbit's was the most attractive.

Q. Was the First Solicitation Process Approved by the Commission?

A. On March 1, 2010, prior to issuing the First Solicitation, NGRID filed the evaluation methodology and timing with the Commission. The Commission approved this filing with some modifications at a meeting on June 17, 2010 and issued a written order on December 1, 2010.

Q. What was the evaluation method used by NGRID?

A. The methodology approved by the Commission was to include three phases of the bid evaluation process: threshold review; price and non-price factor analysis; and negotiation with short listed bidders. In the threshold review phase, the Company considered factors that would affect project viability such as schedule, site control and developer experience. The Company also checked that the projects met all relevant Rhode Island laws such as being commercially reasonable and providing economic benefit to the state. In the second phase, projects that passed the threshold review would be scored on a series of price and non-price factors. The proposed PPA price was compared to NGRID's market forecast of energy, capacity and RECs and the project with the lowest price was given 80 points. There were an additional 20 points available for non-price factors such as: siting and permitting, project development status and operational viability, experience and capability of bidder and project team, financing, and economic benefit. At the end of the second evaluation phase, all but 3 bidders were notified that they were not selected and the remaining 3 bidders were contacted for more information. After receiving additional information about the 3 bidders, NGRID selected Orbit Energy.

Q. Why is it important that the project be identified and selected through a competitive process?

A. Competitive solicitations that garner a robust response and yield a several bids are an effective way to ensure that the price of the winning project(s) is reasonable. With several bidders each independently competing for the right to sign a long-term PPA, there is a large incentive to keep the prices bid as low as possible, consistent with the need to finance the project and earn a reasonable return. Because the Orbit Energy project was selected through a competitive solicitation, Rhode Island ratepayers have a greater level of assurance that they are not paying too much.

PROJECT PRICING

Q. Is the pricing of this project attractive?

A. Yes. The pricing of the project is below the bundled price forecasts (energy, capacity and RECs) presented in the June 22, 2011 testimony of Madison Millhouse. This shows that the project is priced competitively relative to the market value of renewable energy projects as forecast by NGRID's consultants – LAI and ESAI.

Q. What is your opinion of the LAI/ESAI market price forecasts presented by Mr. Milhous?

A. The forecasts are in line with recent La Capra Associates forecasts of energy, capacity and RECs. The REC forecast is higher than current market prices, but the New England REC market is currently in surplus causing low market prices. We expect market prices will increase in the future as demand increases with RPS policies that require escalating

portions of power portfolios to be supplied from renewable energy resources. The production tax credit and investment tax credit are set to expire in 2012 for wind, 2016 for solar and 2013 for other renewable resources. REC prices will also increase if these are not renewed.

Q. How does the pricing of this project compare to the Town of Johnston Project?

A. The PPA price for the Orbit energy project is less than for the Town of Johnson landfill gas project at Rhode Island's central landfill. NGRID has signed a PPA for this project that starts at $119.80 per MWH and escalates at 2.5% annually over its 15 year term.

Q. How does the pricing compare to the expected real levelized costs of other renewable energy technologies?

A. In my February 2, 2010 testimony in Docket 4111, I analyzed the real levelized cost of several renewable energy technologies.[1] The PPA price for the Orbit project is less than the calculated real levelized cost of many technologies including offshore wind, small hydropower, solar PV and biomass. It is closest to onshore wind which I show at $102 per MWH and more expensive than a generic landfill gas, which I show at $62 per MWH in $2013. The following table provides that exhibit from Docket 4111.

[1] Direct Testimony of Richard Hahn on behalf of the Rhode Island Division of Public Utilities and Carriers. Docket Number 4111, Review of the Proposed Town of New Shoreham Project Pursuant to R.I.G.L.§ 39-26.1-7, February 2, 2010. Exhibit RSH-6.

Exhibit RSH-6 from Docket 4111
Gross Levelized Cost Comparison

		real levelized gross $ per MWH (2013$)			
PROJECT	MW	DWW	generic projects	specific projects	total
WMECO Solar	6.00			650.60	650.60
NGRID MA Solar	4.88			544.98	544.98
solar	5.00		442.00		442.00
MA Solar	0.50			318.00	318.00
DWW as filed	**28.80**	**310.62**			**310.62**
fuel cells	10.00		244.25		244.25
wind offshore	100.00		195.00		195.00
tidal	2.00		185.00		185.00
small hydro	5.00		152.00		152.00
Euro offshore-DPN	185.00			143.50	143.50
biomass	80.00		141.50		141.50
BlueWater Wind	200.00			141.10	141.10
Linden CA wind	50.00			128.20	128.20
geothermal	50.00		127.00		127.00
Milford CA wind	200.00			113.75	113.75
wind onshore	50.00		102.00		102.00
landfill gas	30.00		62.75		62.75
VT landfill	1.60			40.60	40.60

It should be noted that the generic landfill gas project cited in the above table is a not based upon an actual project in Rhode Island, whereas, the Johnston landfill project is a real project.

FEEDSTOCK

Q. What waste feedstock is required to run the digester specified in the Orbit PPA?

A. The July 8, 2011 testimony of Anwar Shareef states that the facility will require "120 tons of organic wastes per day, primarily food scraps"[2]. If the facility runs 365 days per year, this would translate to 43,800 tons of organic waste annually.

[2] See page 4 line 9 of Shareef's testimony

Q. How much food waste is available at or within a reasonable delivery distance to the Johnston Landfill?

A. The 2007 Rhode Island Solid Waste Management Plan states that approximately 711,000 tons of commercial waste and 458,000 tons of municipal solid waste were landfilled in 2005. Of this about 15-25% is food waste. This means that 175,000 to 292,000 tons of food waste is landfilled each year. Orbit would have to capture 6.6 to 25 percent of the food waste landfilled at the Johnston facility if it were to use only food scraps as feedstock.

Q. Are there other sources of food waste available to the project?

A. The Massachusetts Department of Environmental Protection did a study in 2002 which produced a database of food waste generators in Massachusetts. The study showed that there was about 880,000 tons of food waste generated annually from commercial, industrial, and institutional sources. Orbit could tap into some of this waste as well.

Q. What do you conclude from this data?

A. This data indicates that there is sufficient supply of feedstock to fuel the proposed Orbit Energy facility.

RISKS TO RATEPAYERS

Q. What risks does this PPA place on ratepayers?

A. The primary risk to ratepayers from this PPA is that the actual market price of bundled energy capacity and RECs would be lower than the negotiated PPA price for bundled energy. Based upon our current assessment of the market, it appears that the project costs

to Rhode Island ratepayers will be less than expected market prices over the term of the contract. Additional risks include the risks associated with the deployment of a new technology (i.e., technology doesn't work as expected), risks that the project will underperform (anaerobic digester does not generate enough methane, etc.), risk that there is not enough fuel stock for the facility, and risks that the project will run into other operational challenges.

Q. Which of these risks are borne by ratepayers?

A. The risk to ratepayers is that the negotiated PPA price will be greater than the market price in the future. The PPA price is only slightly front-loaded, and are expected to be lower than market over the PPA term. The other risks are borne by Orbit Energy, as Rhode Island ratepayers will pay only for energy actually delivered.

Q. What do you conclude from this risk assessment?

A. The risk assessment leads me to conclude that the business arrangement for this project represents an equitable allocation of risk between the project developer and Rhode Island ratepayers.

EMPLOYMENT IMPACTS IN RHODE ISLAND

Q. How many jobs will the proposed project bring to Rhode Island?

A. On page 5 of his July 8, 2011 testimony, S. Anwar Shareef testifies on behalf of Orbit Energy that the project will provide 20 full time jobs during construction and 12 full time jobs at the facility once it is in operation. The 12 full time jobs include 1 plant manager, 1 biologist, 4 machinery operators, 1 mechanic, 4 sorters and 1 administrative assistant.

In addition to the employees of the facility, it will support 2 mechanics and 12 waste haulers.

Q. Is this estimate of job creation reasonable in your opinion?

A. At a high level, I believe that it is reasonable. I do not have any personal experience with the particular HSAD anaerobic digester technology proposed by Orbit. However, I do have experience with diesel generators, which require on-site staffing when used as base load facilities. Also, it is reasonable to assume that the delivery and management of the fuel stock will also require local staffing.

Q. How does this compare to the Deepwater Wind Project?

A. According to the Rhode Island Supreme Court decision upholding the Commission's approval of Deepwater Wind, the Economic Development Corporation determined that the 28 MW project would create 6 permanent full time jobs.[3] This means that the much smaller Orbit project would create twice as many permanent full time jobs as the Deepwater project while being 11% of its size.

Q. What do you conclude from this information?

A. This information indicates that the project will have a reasonable positive impact on Rhode Island employment.

PPA TERMS & CONDITIONS

Q. Have you reviewed the terms and conditions of the PPA?

A. Yes.

[3] Rhode Island Supreme Court Opinion No. 2010-273-M.P. (4185). In re: Review of Proposed Town of New Shoreham Project. Page 69.

Q. What do you conclude from this review?

A. Overall, I find the terms and conditions contained in the PPA to be generally acceptable. I did find two minor issues that I believe should be addressed. Neither of these issues is significant, and they should not prevent the Commission from approving this PPA

The first issue is the definition of the Test REC Price. Prior to the commercial operation of the Orbit facility, energy and RECs will be produced during testing, and NGRID agrees to buy these products at defined prices. Such energy will be priced at ISO-NE's real time hourly LMPs. RECs produced during this test period will be priced based the average of two broker quotes. As I have previously noted in other dockets before this Commission, broker quotes are not a transparent mechanism for determining market prices. I suggest instead that the Company use prices for Rhode Island RECs that are available from published subscriptions data sources. In docket 4227, the Company provided confidential sources for Rhode Island REC prices that came from a subscription data service. Other subscription data sources are also available. I recommend that this source or a comparable data source be used in place of broker quotes.

The second issue involves the definition of the Extension Price, which is the price at which NGRID has a right to purchase power from the Orbit facility after the initial fifteen year term has expired. One of the components of this Extension Price is total assets on the financial statements of Orbit Energy multiplied by a typical rate of return for renewable projects. Total assets listed on financial statements can include many things,

including cash, accounts receivable and other assets that are not directly tied to the book value of the property, plant, and equipment that is needed to generate electricity. Such items should not be included in the development of the PPA rate. I recommend that the definition of the Extension Price be changed such that it is a rate of return multiplied by the net book value of the property, plant, and equipment that is needed to generate electricity.

CONCLUSION

Q. Does this conclude your testimony?

A. Yes. I will supplement this testimony as appropriate if additional information becomes available.

Exhibit RSH-1

Resume of Richard S. Hahn

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

- 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.
- Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Georgia, Vermont.
- Reviewed and analyzed damages claimed in litigation between a developer of renewable energy facilities and the owner of the host site.
- Evaluated the decision of PacifiCorp to acquire new generating resources in Utah. Filed testimony before the Public Service Commission of Utah.
- 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.
- Conducted a study of non-transmission alternatives to a proposed substation and related transmission upgrades in Jay, Vermont.
- 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.
- Analyzed fuel costs, market sales and revenues, capacity position, and performance parameters for a large- mid-west utility.
- 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.

- 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.
- 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.
- Served as an advisor to the Pennsylvania Office of Consumer Advocate in reviewing 2011 default service plans for Pennsylvania Electric Distribution Companies.
- 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.
- 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.
- Served as an advisor to the developer of a utility-scale Solar PV facility in Massachusetts.
- 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.
- Assessed the economic impact of an additional interconnection between ISO-NE and NYISO; analyzed impact on market prices and congestion.
- Reviewed and analyzed the capacity position of a large mid-west utility and the impact of that position on electric rates.
- 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.
- 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.
- Reviewed the Energy Efficiency and Conservation Programs proposed by Pennsylvania Power & Light and 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.
- 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

- 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.
- 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 it's Facilities Plan.
- 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.
- 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.
- 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.
- 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.
- Conducted a review of Massachusetts electric utilities' 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.
- Served as a key member of a La Capra Associates Team evaluating wind generation RFPs in Oklahoma.
- Performed an assessment of plans to procure Default Service Power Supplies for Pennsylvania utilities. Provided expert testimony before the Pennsylvania Public Utilities Commission.
- Performed an assessment of a merchant generator proposal to construct, own, and operate 800 MW of large scale PV solar generating units in Maine.
- Analyzed proposed environmental upgrades to several existing coal-fired power plants in Wisconsin, including an economic evaluation of this investment compared to alternative supply resources. Provided expert testimony in three separate proceedings before the Public Service Commission of Wisconsin.

- Reviewed Pennsylvania Act 129 and Commission rules for Energy Efficiency Plans
- Performed a study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Maine.
- 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.
- Performed a study of non-transmission alternatives (NTAs) to a proposed set of transmission upgrades to the bulk power supply system in Vermont.
- 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.
- 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.
- Served as an advisor to the Maryland Attorney General's Office in the proposed merger between Constellation Energy and the FPL Group.
- Reviewed and analyzed outages for Connecticut utilities during the August 2006 heat wave. Prepared an assessment of utility filed reports and corrective actions.
- 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.
- 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.
- 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.
- Conducted an extensive study of distributed generation technologies, options, costs, and performance parameters for VELCO and CVPS.
- Analyzed and evaluated proposals for three substations in Connecticut. Prepared and issued RFPs to seek alternatives in accordance with state law.
- 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.
- Prepared long term price forecasts for energy and capacity in the ISO-NE control area for evaluating the acquisition of existing powerplants.
- 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.

- Performed a long-term locational installed capacity (LICAP) price forecast for the NYC zone of the NYISO control area for generating asset acquisition.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Assisted in the review of the impact of a major transmission upgrade in Northern New England.
- 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. **Boston, MA**
Principal Consultant 2004 – present

Advanced Energy Systems, Inc. **Boston, MA**
President and COO 2001-2003

NSTAR Steam Corporation **Cambridge, MA**
President and COO 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 AFFILLIATIONS

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-present
Registered Professional Electrical Engineer in Massachusetts	