ATLANTIC ECONOMICS

Michael D. Cadwalader
President

10 Tower Office Park, Suite 408
Woburn, MA 01801
Tel. : 781-281-0553
mdc@AtlanticEconomics.com

CONSULTING EXPERIENCE

ATLANTIC ECONOMICS, Woburn, MA, 2010-present
LECG, Cambridge, MA, 1999-2010
PUTNAM, HAYES & BARTLETT, Cambridge, MA, 1994-99
McKINSEY & COMPANY, Cleveland, OH, 1993

Mr. Cadwalader applies economic analysis to assist clients who operate competitive wholesale electricity markets, or who participate in those markets. He was extensively involved in the development of the markets administered by the New York Independent System Operator. In restructuring efforts in Ontario, the PJM Interconnection, the Midwest U.S., California, and New England, he participated in the development of the energy, ancillary services, and installed capacity markets, and procedures for auctioning financial transmission rights (aka transmission congestion contracts). In the years since those restructured markets first opened, he has participated in the further development of those markets, including the development of more sophisticated energy, ancillary services and installed capacity markets, the incorporation of new resources (such as renewable resources and demand response) into those markets, and the development of detailed procedures for monitoring and mitigating market power.

Electricity

New York

Since the markets operated by the New York Independent System Operator (NYISO) opened in 1999, Mr. Cadwalader has advised the transmission-owning utilities in New York on the structure of those markets. With regard to New York's installed capacity market, his experience includes:

- Analyzing and developing proposals for changes to installed capacity markets to increase the likelihood that they will provide a revenue stream sufficient to induce development of adequate generating resources to meet reliability standards, while also providing proper incentives to provide installed capacity when it is most valuable and where it is most needed, including:
    - The procedures adopted by the NYISO, which call for the price of installed capacity to vary with the amount of installed capacity purchased through use of an installed capacity demand curve.
    - Procedures calling for forward procurement of installed capacity.

- Reviewing the analysis performed by the NYISO to set the parameters used for its installed capacity demand curves for 2005-08, 2008-11, 2011-14, 2014-17, and 2017-21, including:
    - Review of which costs and revenues are appropriately included when estimating the net cost of developing resources that are capable of providing additional installed capacity.
    - Review of procedures for developing a demand curve that will permit minimum installed capacity requirements to be met, given these cost estimates, while accounting for:
        - Locational differences in the net cost of developing resources that are capable of providing additional installed capacity.
        - Costs associated with transmission expansions that would relieve locational constraints.
        - Long-run equilibrium levels of installed capacity levels that generally exceed minimum capacity requirements.
        - Seasonal differences in the amount of capacity offered into the installed capacity markets, and the resulting effect on capacity prices.
        - Forecasted increases over time in the cost of developing additional peaking generation.
        - Reasonable estimates of availability for generators using new technologies.
        - Property taxes, and provisions for avoiding those taxes, or for reducing the impact of those taxes on the cost of developing new generation.
    - Analysis of the impact of various candidate installed capacity demand curves on costs borne by end-use consumers.
- Reviewing the ISO's procedures for calculating the price of installed capacity in regions with locational capacity requirements when capacity is exported from those regions.
- Reviewing the procedures used by the NYISO to determine which generating unit technologies should be considered when selecting the technology whose costs form the basis for the ICAP demand curve.
- Developing and analyzing proposals to permit the installed capacity market to recognize and deal efficiently with locational constraints that may limit the ability of generation in one region to meet load in other regions, including:
    - Analysis of the impact that defining new zones with associated installed capacity requirements to reflect locational constraints would have on the

ability of the installed capacity market to support entry in transmission-constrained regions when needed.

- Analysis of procedures for setting prices that would reduce the likelihood that adding such zones would lead to spurious differences in installed capacity prices that are not related to actual differences in the ability of generation in different zones to meet reliability criteria.

- Analyzing the potential impact of economic and physical withholding on prices realized in the installed capacity market and analyzing reports issued by the NYISO regarding the extent to which installed capacity has been withheld.

- Analyzing and recommending revisions to procedures used by the NYISO to assess whether market power has been exercised, including:

  - Review of the procedures used by the NYISO to calculate a "scaling factor," which accounts for imprecision in forecasts of prices in adjoining control areas when scheduling transactions between those areas, and the implications of this imprecision on forecasts of energy revenue that owners of controllable transmission facilities can expect to realize.

  - Review of bidding practices by resources that must remain in service in order to meet reliability needs should be required to bid in the capacity market as though they could mothball or retire, and evaluation as to whether they are consistent with competitive behavior.

  - Review of allegations that the NYISO was not properly following its procedures for determining whether entrants should be exempted from offer floors.

  - Review of the circumstances under which costs that are shared between facilities should be included in the calculation of a new facility's cost for the purposes of determining whether it should be exempt from mitigation.

  - Development of an improved approach for calculating the maximum amount of installed capacity that may be controlled by ICAP suppliers seeking exemptions from offer caps, which would better align mitigation procedures with whether suppliers actually have incentives to withhold capacity.

  - Analysis of the impact of the NYISO's assumptions regarding long-run equilibrium levels of capacity on the default offer floor that applies to entrants in parts of New York.

  - Analysis of the NYISO's procedures for setting default offer floors calculated when one capacity zone is nested within another, and the potential impact of these rules when they preclude entrants from selling capacity.

  - Development of modifications to mitigation procedures to ensure that when entrants submit multiple proposals requesting capacity resource

interconnection service, mitigation exemptions are awarded to those projects deemed economically efficient.

- Analyzing proposals for modifying procedures for calculating the amount of collateral that must be posted by entities that may need to purchase installed capacity in the NYISO's monthly spot market auction, recommending short-term changes to those procedures, and developing longer-term revisions that would ensure that the collateral requirement is consistent with reasonable expectations of the amount that a customer might be charged for spot market auction purchases.

- Reviewing a proposal for the NYISO to modify the procedures it uses to determine offer floors in each season, and demonstrating that the proposal failed to account properly for seasonal price differences that would likely prevail in the market, therefore precluding generators subject to the offer floor from selling capacity during the summer.

- Reviewing the impact that the potential for mothballed units to return to service can have on whether to proceed with development of new generation, and developing mitigation measures that account for the impact of this uncertainty.

- Reviewing and developing modifications to procedures for determining offer floors for generators that increase their generating capacity that reasonably reflect the cost of developing that additional capacity.

- Developing procedures for estimating the impact of transmission expansions on installed capacity costs borne by end use customers.

- Analyzing and developing proposals to modify the installed capacity markets in order to increase incentives for installed capacity providers to be available to produce energy, including analysis of the effect of these changes on locational installed capacity requirements and market mitigation rules.

- Developing modified procedures permitting installed capacity requirements to be based on customers' forecasted contributions to statewide peak load.

- Analyzing the implications of proposals to change the installed capacity market from a semiannual market to a monthly market, to modify procedures for calculating installed capacity requirements, and to change procedures for determining the amount of installed capacity that providers can offer into seasonal capacity markets.

- Analyzing and developing a proposal to enhance the ability of external suppliers to supply installed capacity into the New York markets, without inadvertently creating opportunities for some market participants to limit others' ability to offer capacity into that market.

- Developing various proposals to improve the procedures used to allocate rights to provide installed capacity in the New York market using capacity located outside New York.

- Analyzing modifications to the methods used to calculate the amount of capacity provided by market participants that would reduce the need for adjustments to installed capacity requirements to ensure that they meet reliability objectives.

- Analyzing the consequences that development of large amounts of highly temperature-sensitive generating capacity would have on installed capacity costs.

With regard to New York's energy and ancillary services markets, his experience includes:

- Reviewing the NYISO's proposed changes to its procedures to calculating real-time prices at external locations to ensure that they achieved their intended outcomes, and demonstrating the need to eliminate guarantee payments to entities importing energy into New York in order for those changes to achieve their objectives of assigning the risk associated with differences between prices in adjoining control areas to entities scheduling transactions between those control areas.

- Critiquing the NYISO's proposed changes to scarcity pricing when shortages are avoided only through the actions of demand response providers, demonstrating that the NYISO's proposed changes would produce energy prices that are inconsistent with regulation and operating reserve prices, which could lead to windfall payments to some suppliers while other suppliers incurred significant losses.

- Reviewing proposals by the NYISO to coordinate real-time schedules with ISO New England, pointing out problems that could limit the degree to which these proposals would meet their objective of reducing differences between the actual level of interchange between New York and New England and the efficient level of interchange, analyzing the proposal's implications for uplift payments, and developing modifications to settlement procedures.

- Reviewing the "market to market coordination" proposal developed by the NYISO and PJM (which establishes procedures for coordinating real-time dispatch when the NYISO can re-dispatch to manage congestion on a PJM constraint at lower cost than PJM can or vice versa) and the proposed settlement procedures including procedures for calculating the amount of energy that each of the participating ISOs would be permitted to flow over constraints in the other's system, and proposing changes.

- Reviewing the changes in the regulation market proposed by the NYISO to comply with Order 755 (which required ISOs to pay separately for regulation capacity and regulation performance), and developing an alternative procedure which would result in more efficient regulation procurement.

- Reviewing the changes to procedures for paying demand response providers proposed by the NYISO to comply with Order 745 (which required ISOs to pay the locational marginal price for demand reduction when doing so would cause a net reduction in payments by consumers), and assessing whether those

procedures complied with those requirements when there is transmission congestion.

- Reviewing changes proposed by the NYISO to its procedures for calculating collateral requirements for entities scheduling transactions between New York and adjoining control areas, and demonstrating problems with how those procedures would apply to importers.

- Analyzing the impact that phase angle regulators on the Ontario-Michigan border would have on costs incurred by participants in the NYISO market.

- Assessing procedures intended to ensure that generators that seek to retire, but cannot be permitted to do so for reliability reasons, are neither disadvantaged nor advantaged as a result of not being permitted to retire.

- Reviewing the impact of plans to remove restrictions that had forbidden generators receiving schedules in the day-ahead market from submitting real-time offers at prices that exceeded their day-ahead offers.

- Evaluating the procedures the NYISO uses to calculate guarantee payments made to market participants to ensure that financial settlements for each market participant are consistent with the bids submitted by that participant, and to eliminate opportunities to game those payments by scheduling some energy for sale through bilateral transactions while other energy is sold directly into the market.

- Reviewing and proposing changes in procedures proposed by the NYISO to account for deviations between actual output and instructed output for some resources when determining real-time energy prices.

- Analyzing proposals that would permit market participants without generating or load-serving capability to submit bids to produce or consume energy in the day-ahead market, while ensuring that physical generating capacity would be started when necessary to ensure reliable service, and limiting the degree to which participants in these transactions would shift costs onto other market participants.

- Reviewing proposals to permit operating reserve and regulation shortages, the need to rely upon recallable exports and the need to resort to emergency demand reduction programs to be reflected in energy prices, and to revise the methods used to calculate energy and ancillary services prices in the NYISO's real-time markets to permit implementation of a full two-settlement system for energy and all dispatch-based ancillary services.

- Reviewing the NYISO's calculations of the amounts to be paid or collected from various market participants in the real-time market during scarcity conditions, and ensuring the consistency of those prices with the rules governing the calculation of prices during such conditions.

- Analyzing and developing proposals for mechanisms to mitigate market power in the NYISO's day-ahead and real-time energy markets, and reviewing others' proposals.

- Developing proposals that would permit effective mitigation of generator's start-up cost bids in cases where the generator had changed its minimum output level, in a manner that accounts for changes in fuel costs over time.

- Reviewing the market monitoring unit's assessment of the competitiveness of the energy market.

- Analyzing a procedure the NYISO proposed to use to compensate generators that were erroneously committed due to the use of a flawed test assessing whether market power was being exercised, and illustrating the problems with that procedure.

- Analyzing the consequences of errors in the NYISO's day-ahead commitment procedures on day-ahead and real-time prices.

- Analyzing and developing proposals to modify settlement procedures for import and export transactions to eliminate gaming opportunities.

- Analyzing proposals to modify procedures used to calculate the amount that market participants are paid for providing voltage support payments, and developing a procedure that improves incentives for developing this capability.

- Analyzing the methods used by the NYISO to calculate prices when fixed-block units are dispatched.

- Developing a proposal to modify procedures for calculating locational operating reserve requirements, thereby permitting those requirements to be reduced when congestion costs in the energy market are relatively low.

- Developing a proposal to modify procedures for calculating the amount of energy that can be imported from Quebec, thereby permitting additional energy to be imported when the cost of procuring additional operating reserve is relatively low.

- Refuting testimony filed by a market participant opposing the use of marginal loss pricing in New York.

With regard to markets for financial transmission rights (called transmission congestion contracts (TCCs) in New York), his experience includes:

- Developing mechanisms for allocating revenue from the sale of fixed price TCCs (i.e., TCCs that are sold at prices that are determined before they are allocated, rather than being sold in an auction) that are consistent with procedures used to allocate revenue from TCCs sold in auctions.

- Analyzing the outcomes of NYISO-administered auctions of TCCs, and developing recommendations regarding the release of TCCs in later auctions.

- Analyzing mechanisms to modify procedures used to conduct these auctions so that market participants have additional flexibility with respect to choosing the time period for which they purchase TCCs, and the auction rounds in which they wish to sell TCCs.

- Developing proposals for awarding TCCs to developers of merchant transmission expansions, which would grant those developers additional autonomy to determine the type of awards they would receive, and reviewing proposals to permit these awardees to surrender their TCCs, to permit them additional flexibility (thereby encouraging the development of such expansions) without permitting them to shift costs onto other market participants.

- Developing proposals for forecasting the net impact, including the impact on energy costs and revenues from TCCs, of regulated transmission expansions on customers in different parts of the state, for the purpose of allocating costs of those expansions among prospective beneficiaries in a manner that reflects differences in the net benefits that beneficiaries in different areas are expected to receive.

- Reviewing proposals to allocate the costs associated with transmission outages to the entities responsible, thereby giving them market-based incentives to minimize the costs associated with these outages, and reducing the frequency with which the revenues collected by the NYISO as a result of transmission congestion are insufficient to fund the NYISO's obligations to purchasers of TCCs.

- Reviewing proposals to resolve chronic revenue shortfalls resulting from the sale of more TCCs than can be supported by congestion revenues collected by the NYISO through the use of locational pricing for energy in the day-ahead market.

- Analyzing proposed changes to the procedures used by the NYISO for modeling the impact of transmission losses on the number of TCCs that can be sold in any given round of the TCC auction and the potential consequences of those changes for these congestion revenue shortfalls.

His background pertaining to the New York market also includes:

- Review of a proposal to refuel or repower a generator to meet a reliability need, comparison of the net cost associated with that proposal to alternative transmission-based solutions to that reliability need, and an assessment of whether the proposed generator was likely to be in the interest of consumers in the short and long run, given competitive responses by other suppliers and its possible impact on regulatory changes.

- Critiquing a report that calculated the damages incurred by various owners of generation in New York as a consequence of a finding by the Federal Energy Regulatory Commission that the NYISO's method for translating installed capacity requirements into unforced capacity requirements violated the NYISO's tariff.

- Analyzing restrictions imposed by the New York Independent System Operator on the amount of installed capacity that a load-serving entity on Long Island

was permitted to self-supply, and of the impact on costs incurred by that LSE if those restrictions had not been imposed.

- Analyzing the consequences of errors committed by the NYISO when conducting TCC auctions, evaluating the NYISO's proposals to correct those errors, reviewing the calculations performed by the NYISO to implement those corrections, and documenting those calculations.

- Evaluating a generator's request for permission to build at a site in New York, focusing on the costs that development at this site would impose upon other market participants due to that generator's impact on transmission constraints given the way that the NYISO's installed capacity and ancillary services markets handled such constraints.

- Assessing various options for ensuring that a utility receives the transmission service to which it is entitled in an ISO-administered market under contracts that predate the development of ISOs.

- Evaluating the technical impediments to developing a single market for a Regional Transmission Organization that was proposed for the Northeast U.S.

- Analyzing proposals for allocating the costs associated with reliability-mandated upgrades, and developing mechanisms for allocating those costs;

- Reviewing the implications of FERC orders pertaining to the New York market and elsewhere, and assessing their likely implications for the New York markets.

- Reviewing numerous tariff changes and other filings made by the NYISO, to ensure they are consistent with their stated purposes.

Mr. Cadwalader's earlier involvement in the creation of the markets operated by the NYISO included developing procedures for:

- Auctioning TCCs.

- Creating competitive markets for the provision of ancillary services.

- Creating competitive markets for the supply of installed capacity, including drafting the rules for, descriptions of, and tariff language governing auctions of installed capacity, and developing the models to be used in those auctions.

- Giving ancillary service providers incentives to provide the services they have been selected to provide, without being excessively punitive.

- Scheduling generating units on a day-ahead basis so that loads that have purchased energy in the day-ahead market can be served as efficiently as possible, while not jeopardizing the system's ability to serve all loads.

- Ensuring that generators dispatched by the NYISO will have incentives to follow their instructions.

- Pricing transactions in which energy is injected or withdrawn in external control areas.

- Permitting market participants to schedule bilateral transactions that do not impose physical obligations to perform on any particular generator.
- Allocating TCCs to market participants with pre-existing transmission rights.
- Allocating responsibility for the fixed costs of the transmission system while retaining incentives that encourage efficiency.
- Calculating guarantee payments that ensure that all market participants recover their full bids for all services they provide (or, in the day-ahead market, are scheduled to provide).

In addition, Mr. Cadwalader's other work in developing the New York market included:

- Illustrating how multi-settlement systems for electricity pricing can permit electricity to be generated at lower cost than one-settlement systems, can deter gaming by market participants, and can bring about price certainty for a broad range of market participants.
- Developing models illustrating how basing electricity prices on location-specific marginal costs induces efficiency in the dispatch of existing generation, the construction and siting of new generation, and the construction of additional transmission capacity, and comparing these effects to the consequences of other pricing systems that provide different incentives.
- Illustrating ways in which participants in electricity systems using location-specific marginal cost pricing can write contracts enabling sellers and buyers of power to hedge against risks, but which do not impede incentives for economic efficiency in generation markets.
- Developing detailed explanations of the procedures used to determine advance schedules for generators and loads, to dispatch generators in real time, and to calculate locational electricity prices.
- Preparing comparisons of the transmission costs that market participants would bear under locational pricing to the costs they bore under tariffs in effect at that time.
- Explaining details of the restructuring proposal to regulators and to other market participants.
- Drafting portions of the NYISO's tariffs, and developing responses to filings by intervenors in proceedings at FERC.

Ontario

In Ontario, Mr. Cadwalader assisted the Independent Electricity System Operator (IESO) in its review of procedures used by the IESO's Market Assessment Unit to identify anomalous market participant behavior and flaws in the design of the IESO-administered electricity markets. Mr. Cadwalader co-authored a report recommending certain changes to these procedures.

Mr. Cadwalader also assisted the IESO in the development of several aspects of its Market Evolution Program, including:

- Assessing opportunities to develop a day-ahead market, in which the IESO would schedule generators to meet anticipated load during the next day using offers and bids submitted for the next day, permitting a more efficient commitment of resources, enhancing the ability of some market participants to participate in the market by providing the opportunity to lock in costs or revenues a day in advance, and reducing the likelihood that insufficient resources will be available the next day to serve load reliably.

- Developing procedures for conducting an enhanced day-ahead commitment procedure, in which resources would be scheduled based on day-ahead offers and guarantee payments for committed resources would be based upon those offers, when it became apparent that a complete day-ahead market could not be implemented due to the absence of locational pricing in Ontario.

- Developing the structure of a "resource adequacy" market, which would compensate generation or demand response resources that make their capacity available to serve load within Ontario, thereby ensuring that sufficient capacity to meet reliability requirements is developed (or remains in service).

Mr. Cadwalader's previous involvement in the design of the Ontario market (some of which was performed for the IESO, and some of which was performed for the Ontario Market Design Committee, which developed the blueprint for the electricity market that the IESO now operates), included:

- Developing modifications to settlement procedures for import and export transactions in order to provide increased price certainty for participants in those transactions and to eliminate gaming opportunities.

- Assessing the need for an installed capacity market and recommending how such a market ought to be implemented, if such a need existed.

- Assessing the procedures the IESO would use to calculate prices during shortages and to determine bid and price caps.

- Developing the structure of the market for financial transmission rights, including:

    - Creating a procedure for defining financial transmission rights that permits these instruments to be defined as financial options.

    - Detailing procedures for the IESO to use to determine how many financial transmission rights it can issue without incurring undue financial risk.

    - Developing procedures for conducting auctions of these financial transmission rights.

- Developing proposals for competitive and efficient markets for regulation and operating reserves.

- Analyzing proposals for non-locational pricing and illustrating the difficulties that follow from such procedures.

- Proposing mechanisms for compensating generators that have been dispatched to operate and for compensating generators that have not been dispatched to operate that would give these generators incentives to follow dispatch instructions.

Midcontinent ISO

In the markets administered by the Midcontinent ISO (MISO), Mr. Cadwalader has been involved in:

- Developing the enhanced LMP approach for calculating energy and ancillary services prices, which (in addition to the cost of incremental output) incorporates start-up and minimum generation costs in electricity prices.

- Developing the structure for procuring energy, operating reserve and regulation and pricing those services that the MISO used when it expanded its energy markets to encompass operating reserve and regulation, testifying regarding these changes, and conducting a detailed evaluation of the MISO's plans for implementing those markets.

- Evaluating and critiquing proposals by advocates of "flowgate" transmission rights, which were rights to flow energy over individual transmission facilities, as opposed to rights to payments that would hedge congestion charges incurred when injecting energy at one location and withdrawing it at another.

- Developing the outlines of procedures that different control areas participating in the MISO could have used to coordinate congestion management among themselves.

- Reviewing proposals for the allocation of financial transmission rights among market participants.

PJM

Mr. Cadwalader's work involving the markets administered by PJM has included:

- Evaluating the initial proposal for the Basic Generation Service auction in New Jersey, in which all of the utilities in a state simultaneously purchase their energy and ancillary services requirements from suppliers, using a simultaneous descending clock auction (similar to the mechanism used in telecommunications spectrum auctions).

- Evaluating the likely consequences for consumers of proposals to modify the Basic Generation Service auction to mandate long-term purchases from new generating facilities in New Jersey.

- Analyzing the likely consequences of a proposal for the state of Maryland to "re-regulate" electricity markets there.

- Estimating the cost of purchasing the portion of the generation fleet in PJM that was not already owned by the municipally-owned utilities or the regulated

portions of investor-owned utilities, and illustrating how transferring ownership of generators to regulated entities would not reduce electricity charges for customers in the long run.

- Evaluating the procedures that PJM uses to recoup operating reserve charges from market participants, their relationship to cost causation, and their implications for market efficiency.
- Developing procedures that PJM and neighboring control areas could use in order to improve coordination of real-time congestion management among different control area operators.
- Developing a two-settlement system, including a day-ahead settlement for generators, LSEs and transmission customers.
- Drawing up procedures for auctioning FTRs.
- Creating a competitive market for the provision of regulation services.

California

Work that Mr. Cadwalader performed regarding the California markets included:

- Analyzing the ability for a generator owner to predict whether a generator it owned would be "dec'd" (i.e., it would not be able to produce electricity due to transmission congestion), and analyzing the impact that scheduling that generator to produce less energy would have had on that generator owner and on the entity buying energy under an energy purchase agreement with that generator owner.
- Analyzing whether a generator owner's decision to purchase energy to fulfill its obligations under an energy purchase agreement, instead of building a simple-cycle generator to provide that energy, was reasonable given changes in market fundamentals after the contract was entered into, and analyzing the consequences of not having constructed that generator on the purchaser of energy under that agreement.
- Reviewing the California ISO's proposed market re-design to base its market on locational marginal pricing, and preparing a paper critiquing the proposal.
- Summarizing the multi-settlement procedure and market mitigation mechanisms in place in the Northeast for the benefit of market participants.
- Preparing a summary of fundamental principles and procedures that should be used to define congestion revenue rights, and evaluating proposals under consideration in California ISO working groups with those principles in mind.

Before the California ISO adopted its initial market design, Mr. Cadwalader assisted in the development of numerous presentations and filings illustrating the advantages of power markets such as those that were adopted in the Northeast.

Other Experience

In New England, Mr. Cadwalader assisted in the development of proposals for the allocation of auction revenue rights, which are used to allocate revenues from the sale of financial transmission rights.

In the Southwest Power Pool, Mr. Cadwalader developed proposals for a market for installed capacity, building upon the lessons learned in the installed capacity markets in the Northeastern U.S., and evaluated and critiqued proposals for real-time and forward energy markets, including proposals to offer both "flowgate" transmission rights and point-to-point financial transmission rights simultaneously.

In the Northwestern U.S., Mr. Cadwalader developed and presented parts of a two-day seminar for market participants discussing various options for electricity market design.

Mr. Cadwalader's other experience relating to electricity markets includes:

- Analyzing a proposal by the Federal Energy Regulatory Commission to pay locational marginal prices to all demand response providers who reduce their consumption, and the implications for economic efficiency of such a proposal.

- Reviewing the bids submitted into an auction of financial transmission rights to assess whether the outcome was consistent with competitive market behavior.

- Estimating the financial consequences for a utility if the purchaser of transmission service under a long-term contract with that utility exercised its option to terminate that contract.

- Estimating the effect of the loss of liquidity in electricity markets on the value of positions held by an energy marketer.

- Developing the framework for an installed capacity procurement strategy that struck an optimal balance between minimizing costs and assuming risks.

- Assisting a utility in assessing the extent to which it could reduce its costs by developing additional generation in its service area.

- Creating pricing formulas for an electricity retailer that would permit it to identify the costs incurred to serve various customers, so that it could permit customers to choose from a wide variety of hedging options while minimizing its own exposure to risk.

- Coordinating a large study of stranded costs and developing models for use in the study. Data on fixed and variable costs for individual generators, together with output from a sophisticated electricity dispatch model, were used in models developed for this study to predict the amount and type of generation capacity that would remain in service under a variety of scenarios regarding the future structure of electricity markets. Stranded cost estimates incorporated the effects of changes in demand resulting from changes in price, economy energy imports available from external sources, and potential entrants into a generation market in which no generators receive subsidies.

- Predicting the impact of market power on prices in a deregulated generation market. These studies used a competitive bidding model developed especially for

this purpose. The results demonstrated the effects of various degrees of market power on market prices and illustrated the situations in which significant distortions in pricing due to market power are most likely.

- Developing a program to revamp capital budgeting procedures used by an electric utility client, increasing the cost-effectiveness of these expenditures while also providing additional assurance that capital spending was consistent with the client's strategic objectives.

Aluminum

Mr. Cadwalader assisted an aluminum company in analyzing the proportion of the cost of a bauxite mining and alumina refining operation that represented the value of the land and mining rights associated with the operation, which was pertinent to the determination of whether the purchase price was subject to an *ad valorem* tax.

EDUCATION

MBA, with distinction, Finance and Strategic Management, WHARTON SCHOOL, UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA, May 1994

- Named a Palmer Scholar (top five percent of graduating class).

MA, Economics, UNIVERSITY OF ROCHESTER, Rochester, NY, October 1988

- Passed Ph.D. qualifying examination.
- W. Allen Wallis Fellow.
- Herbert H. Lehman Scholar.

AB, *summa cum laude,* Mathematics and Economics, WASHINGTON UNIVERSITY, St. Louis, MO, May 1985

- Elected to Phi Beta Kappa.
- Arthur Holly Compton Fellow.
- National Merit Scholar.

OTHER POSITIONS HELD

INLAND STEEL INDUSTRIES, Chicago, IL, Business Plan Analyst, 1991–92

Mr. Cadwalader prepared forecasts of income statements, balance sheets and cash flow statements for the firm and various subsidiaries.

INLAND STEEL INDUSTRIES, Chicago, IL, Internal Auditor, 1988–91

Mr. Cadwalader conducted reviews of various aspects of the company's operations. Representative projects included:

- Reviewing the procedures used to select capital projects and to monitor their progress.

- Analyzing the procedures used to verify freight discounts granted to customers.
- Assessing the weaknesses of a procedure that tracked liquid nitrogen and oxygen costs, and implementing improvements to correct these deficiencies.

UNIVERSITY OF ROCHESTER, Rochester, NY, Instructor, 1987

Mr. Cadwalader taught one half-semester of Advanced Macroeconomics and served as a teaching assistant for courses in intermediate microeconomics and risk and insurance.

LAURENCE H. MEYER & ASSOCIATES (now Macroeconomic Advisers), St. Louis, MO, Research Assistant, 1984

Mr. Cadwalader assisted in the development of models used to prepare macroeconomic forecasts.

CONFERENCES AND OTHER SELECTED PRESENTATIONS

1. "Forecasting the Market Price of Electricity for Stranded Investment Calculations" (with Susan Pope and Rana Mukerji), June 19, 1996, IBC Conference on Strategies to Measure, Mitigate and Recover Stranded Costs, Washington, DC.

2. "Understanding Transmission" (with Scott Harvey), Mar. 31, 1998, Pasha Publications ERCOT Power Markets Conference, Houston, TX.

3. "Buying and Selling Power through the PJM Energy Market" (with Susan Pope), June 9, 1998, Infocast Conference on Taking Advantage of Electricity Choice in Pennsylvania & New Jersey, Philadelphia, PA.

4. "How LMP Works" (with John Chandley), June 16, 1998, Pasha Publications Conference on Locational Marginal Pricing: Using PJM for Risk Management, Philadelphia, PA.

5. "Market-Based Pricing of Ancillary Services under the New York ISO," Oct. 15, 1998, EUCI Ancillary Services Conference, Denver, CO.

6. "Understanding Transmission" (with Scott Harvey), Oct. 26, 1998, PowerMart '98, Houston, TX.

7. "Efficient Competitive Markets for Ancillary Services", Mar. 4, 1999, EUCI Ancillary Services Conference, Denver, CO.

8. "How Transmission Works: Paths, Costs, Rights and ISOs" (with Joe Graves and Steve Henderson), Mar. 23, 1999, FT Energy Conference on Transmission Issues: Access, Reliability and Markets, Houston, TX.

9. "A Status Report on the Development of Competitive Ancillary Services Markets," Mar. 25, 1999, Infocast Conference on New Business Opportunities in Competitive Ancillary Services Markets, Philadelphia, PA.

10. "How Transmission Works: Paths, Costs, Rights and ISOs" (with Joe Graves and Steve Henderson), June 8, 1999, FT Energy Conference on ECAR Power Markets: Plugging into the Powerful Midwest, Columbus, OH.

11. "Further Exploration of Transmission Rights Issues," IMO Technical Panel, July 27, 1999, Toronto, ON.

12. "Criteria for Assessing How Payments to Holders of Transmission Rights Should Be Determined," IMO Technical Panel, Aug. 10, 1999, Toronto, ON.

13. "Key Features of the Strawman Proposal for Transmission Rights," IMO Technical Panel, Aug. 31, 1999, Toronto, ON.

14. "Options vs. Obligations: The Experience of Other Markets," IMO Technical Panel, Sept. 14, 1999, Toronto, ON.

15. "How Transmission Works: Paths, Costs, Rights and ISOs" (with Joe Graves, Steve Henderson and Abram Klein), Sept. 28, 1999, FT Energy Conference on PJM Power Markets: Making Adjustments, Philadelphia, PA.

16. "Managing Transmission Price Risk with Financial Transmission Rights," Oct. 1, 1999, Infocast Merchant Plant Development and Finance Conference, Houston, TX.

17. "Activity Rules for the Transmission Rights Auction," IMO Technical Panel, Oct. 12, 1999, Toronto, ON.

18. "Applying Congestion Pricing to Markets for Ancillary Services" and "Using Financial Transmission Rights to Hedge Against Transmission Costs," Nov. 19, 1999, Infocast Conference on Congestion Pricing and Forecasting, Washington, DC.

19. "Awarding TCCs to Investors in Transmission Expansions," Dec. 17, 1999, NYISO Market Structures Working Group, Albany, NY.

20. "Congestion Management Workshop" (with John Chandley and Susan Pope), June 6–7, 2000, RTO West Congestion Management Working Group, Portland, OR.

21. "Ancillary Services Workshop," June 8, 2000, RTO West Congestion Management Working Group, Portland, OR.

22. "Implementing Flowgate Rights in an LMP System" and "Coordination of Congestion Management," July 19, 2000, Joint Industrial Summit and MISO Advisory Committee Meeting, Rosemont, IL.

23. "Coordinating Congestion Management Across Multiple Control Areas", MISO Committees, Sept. 14, 2000, Indianapolis, IN.

24. "Transmission Access and Risk," Oct. 3, 2000, Infocast Conference on Portfolio Risk Analysis and Management, Chicago, IL.

25. "Flowgate Rights: Can They Deliver?," Feb. 8, 2001, EUCI Congestion Management Conference, Denver, CO.

26. "How Optimal is Optimal? A Comparison of Procedures Used to Optimize Ancillary Services Markets" and "Market-Based Pricing of Ancillary Services: Market Design Choices, Consequences and Outcomes" (with Matthew Kunkle), Nov. 1–2, 2001, EUCI Ancillary Services Conference, Denver, CO.

27. "Implementing Installed Capacity Markets: Why You Shouldn't Fire Before You Aim," Mar. 25, 2002, EUCI Electricity Market Design Conference, Atlanta, GA.

28. "Lessons from the Installed Capacity Markets in the Northeast," Apr. 1, 2002, ERCOT Generation Adequacy Working Group, Austin, TX.

29. "Northeastern Electricity Markets: Day-ahead and Real-time Markets in New York and PJM, and New York's AMP," May 17, 2002, IEP/CMUA Market Design Seminar, Sacramento, CA.

30. "Imports, Exports and FTR Settlement in the Day-Ahead Market," June 19, 2003, IMO Day-Ahead Markets Working Group, Mississauga, ON.

31. "Timing of the Price Calculation in the Day-Ahead Market," June 25, 2003, IMO Day-Ahead Markets Working Group, Mississauga, ON.

32. "Optimally Designing Resource Adequacy Requirements," June 26, 2003, IMO Long-Term Resource Adequacy Working Group, Mississauga, ON.

33. "Is There a Workable Market Solution for Assuring Resource Adequacy? The Case of Decreasing Incremental Cost Curves" and "Implementation of Resource Adequacy Requirements in the Northeast U.S.," July 9, 2003, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

34. "Auctioning the Responsibility to Serve Load: A Potential Solution for the 'Buyer Issue,'" July 24, 2003, IMO Long-Term Resource Adequacy Working Group, Mississauga, ON.

35. "Centralized Procurement of Resources to Meet a Resource Adequacy Requirement," Aug. 6, 2003, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

36. "The NYISO Installed Capacity Demand Curve," Aug. 20, 2003, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

37. "Shaping Price Caps for In-City Installed Capacity," Aug. 25, 2003, NYISO Installed Capacity Working Group, Albany, NY.

38. "Marginal Loss Pricing and Financial Transmission Rights," Sept. 16, 2003, IMO Day-Ahead Markets Working Group and Long-Term Resource Adequacy Working Group, Mississauga, ON.

39. "Market Power Mitigation in the Day-Ahead Market," Sept. 29, 2003, IMO Day-Ahead Markets Working Group, Mississauga, ON.

40. "Transitional Issues Associated with Resource Adequacy," Oct. 15, 2003, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

41. "FTR Issues: Allocation, Pricing and Payments," Oct. 20, 2003, IMO Day-Ahead Markets Working Group, Mississauga, ON.

42. "Inducing Near-Term Development of Generating Capacity," Nov. 12, 2003, IMO Long-Term Resource Adequacy Working Group, Mississauga, ON.

43. "Defining the Resource Adequacy Product," Jan. 13, 2004, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

44. "Defining the Resource Adequacy Product: Follow-Up," Feb. 11, 2004, IMO Long-Term Resource Adequacy Working Group, Mississauga, ON.

45. "Determination of the Resource Adequacy Requirement," Feb. 25, 2004, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

46. "The Planning Horizon and the Commitment Period," Mar. 10, 2004, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

47. "Structure of Auctions Used in the Resource Adequacy Market," Mar. 24, 2004, IMO Long-Term Resource Adequacy Working Group, Mississauga, ON.

48. "Using Demand Curves to Determine Resource Adequacy Requirements," Apr. 7, 2004, IMO Long-Term Resource Adequacy Working Group, Toronto, ON.

49. "Meeting Operating Reserve Requirements at the Lowest Cost," May 10, 2004, NYISO Scheduling & Pricing Working Group, Albany, NY.

50. "Interregional Trade in Installed Capacity," "Determining the Commitment Period for ICAP Suppliers", and "Designing and Implementing Installed Capacity Markets," May 21, 2004, EUCI Installed Capacity Conference, Boston, MA.

51. "Regional Flexibility in Resource Adequacy Requirements" and "Resource Adequacy Requirements and Market Power," Dec. 2, 2004, EUCI Resource Adequacy Conference, San Francisco, CA.

52. "Are Resource Adequacy Requirements Needed to Meet Reliability Objectives" and "Resource Adequacy Requirements and Market Power," Apr. 14, 2005, EUCI Resource Adequacy Conference, Washington, DC.

53. "Energy and Operating Reserves Markets That Provide Incentives for Efficient Operation, Commitment and Development," Mar. 16, 2006, MISO Ancillary Services Task Force, Carmel, IN.

54. "Efficient Procurement and Pricing of Operating Reserves in Markets with Multiple Operating Reserve Requirements, Multiple Locations and Multiple Settlements," Apr. 11, 2006, MISO Ancillary Services Task Force, Carmel, IN.

55. "Alternatives to Purchasing Operating Reserves in a Simultaneously Optimized Day-Ahead Market" and "Incentives for Self-Supply and Interrelationships Between Energy and Operating Reserves Prices in Simultaneously Optimized Markets," May 9, 2006, MISO Ancillary Services Task Force, Carmel, IN.

56. "Simultaneously Optimized Markets for Energy, Operating Reserves and Regulation," June 28, 2006, MISO Ancillary Services Task Force, Carmel, IN.

57. "Market Monitoring and Mitigation Procedures in the Installed Capacity Market," July 6, 2006, NYISO Installed Capacity Working Group, Albany, NY.

58. "Cost Recovery in a Competitive Installed Capacity Market," Aug. 1, 2006, NYISO Installed Capacity Working Group, Albany, NY.

59. "Adjusting Installed Capacity Demand Curves to Account for Seasonal Variations in Installed Capacity Prices," May 2, 2007, NYISO Installed Capacity Working Group, Albany, NY.

60. "24-Hour Optimization in Day-Ahead Markets," Oct. 30, 2007, IESO Stakeholder Information Session, Toronto, ON.

61. "Comparing Methods for Calculating Production Cost Guarantee Payments that Focus on Day-Ahead Constrained Schedules," Nov. 30, 2007, IESO Production Cost Guarantee Technical Support Group, Toronto, ON.

62. "Disadvantages of Methods for Calculating Production Cost Guarantees that Focus on Day-Ahead Unconstrained Schedules," Jan. 30, 2008, IESO Production Cost Guarantee Technical Support Group, Toronto, ON.

63. "Another Method for Calculating Production Cost Guarantee Payments," IESO Production Cost Guarantee Technical Support Group, Jan. 30, 2008, IESO Production Cost Guarantee Technical Support Group, Mississauga, ON.

64. "Market Rules That Apply When an LSE Acquires More Unforced Capacity Than It Needs to Meet Its Share of a Locational UCAP Requirement," June 17, 2008, NYISO Installed Capacity Working Group, Rensselaer, NY.

65. "Production Cost Guarantee and Congestion Management Settlement Credit Calculation in an Enhanced Day-Ahead Commitment Procedure," July 15, 2008, IESO Day-Ahead Guarantees and Export Inclusion Technical Support Group, Mississauga, ON.

66. "Additional Details of Production Cost Guarantee Calculation in an Enhanced Day-Ahead Commitment Procedure," Sept. 4, 2008, IESO Day-Ahead Guarantees and Export Inclusion Technical Support Group, Mississauga, ON.

67. "Incorporating Operating Reserves in the Day-Ahead Production Cost Guarantee Calculation," Jan. 21, 2009, IESO Enhanced Day-Ahead Commitment Technical Support Group, Mississauga, ON.

68. "Incorporating the Impact of a Project on Congestion Rents When Calculating the Net Benefit Realized by Load in Each Zone," May 28, 2009, NYISO Electric System Planning Working Group, Rensselaer, NY.

69. "Description of the Procedure for Forecasting the Impact of a Project on TCC Revenues Allocated to Load in Each Zone," Feb. 23, 2010, NYISO Electric System Planning Working Group, Rensselaer, NY.

70. "Bidding Requirements for ICAP Spot Market Auctions," Oct. 10, 2012, NYISO Credit Policy Working Group, Rensselaer, NY.

71. "Ramping Constraints and Scarcity Pricing," June 9, 2015, NYISO Market Issues Working Group, Rensselaer, NY.

TESTIMONY

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Member Systems of the New York Power Pool Regarding the General Structure of the New York Installed Capacity Market, Docket Nos. ER97-1523-000, OA97-470-000, and ER97-4234-000 (not consolidated), May 28, 1999.

Before the Federal Energy Regulatory Commission, Review of the California ISO's MD02 Proposal (joint affidavit with Scott Harvey and William Hogan), Docket Nos. EL00-95-001 and ER02-1656-000, June 4, 2002.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the Cost of Losses Associated with Transmitting Energy Under a Grandfathered Transmission Contract, Docket Nos. OA97-470-065, ER97-1523-070, and ER97-4234-063 (not consolidated), Oct. 16, 2002.

Before the Federal Energy Regulatory Commission, Initial Remand Testimony Submitted on Behalf of the Consolidated Edison Company of New York, Inc., Regarding the Allocation of Transmission Congestion Contracts to Customers Receiving Transmission Service Under Grandfathered Contracts, Docket No. EL02-23-000, Jan. 29, 2003.

Before the Federal Energy Regulatory Commission, Rebuttal Remand Testimony Submitted on Behalf of the Consolidated Edison Company of New York, Inc., Regarding the Allocation of Transmission Congestion Contracts to Customers Receiving Transmission Service Under Grandfathered Contracts, Docket No. EL02-23-000, Feb. 19, 2003.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Indicated Transmission Owners, Multiple Intervenors and Municipal Electric Utilities Association of New York, Regarding Adjustments to the New York ISO's Installed Capacity Demand Curve Needed to Reflect Seasonal Price Differences in the New York Installed Capacity Market, Docket No. ER05-428-000, Apr. 5, 2005.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Long Island Power Authority and LIPA Regarding the Use of Capacity in Long Island to Meet LIPA's Locational Capacity Requirements, Docket No. EL07-16-000, Nov. 16, 2006.

Before the Federal Energy Regulatory Commission, Reply Affidavit Submitted on Behalf of the Long Island Power Authority and LIPA Regarding the Use of Capacity in Long Island to Meet LIPA's Locational Capacity Requirements, Docket No. EL07-16-000, Jan. 31, 2007.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Midwest Independent Transmission System Operator, Inc., Regarding Simultaneously Optimized Markets for Energy and Ancillary Services, Docket No. ER07-550-000, Feb. 12, 2007.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2008-11 Capability Years, Docket No. ER08-283-000, Dec. 24, 2007.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2008-11 Capability Years, Docket No. ER08-283-000, Jan. 15, 2008.

Before the Federal Energy Regulatory Commission, Answering Testimony Submitted on Behalf of the New York Transmission Owners Regarding the Calculation of Damages Incurred as a Result of Errors in Procedures Used to Determine Unforced Capacity Requirements, Docket No. EL05-17-003, Dec. 5, 2008.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the Implications of Surplus Capacity Assumptions on Installed Capacity Revenues Required to Induce the Development of Generation in New York City, Docket Nos. EL07-39-006 and ER08-695-004, July 6, 2010.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2011-14 Capability Years, Docket No. ER11-2224-000, Dec. 21, 2010.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Indicated New York Transmission Owners Regarding Criteria for the Creation of New Installed Capacity Zones in New York, Docket No. ER04-449-023, Feb. 10, 2011.

Before the Federal Energy Regulatory Commission, Supplemental Affidavit Submitted on Behalf of the Indicated New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2011-14 Capability Years, Docket No. ER11-2224-001, Feb. 28, 2011.

Before the Federal Energy Regulatory Commission, Supplemental Affidavit Submitted on Behalf of the Indicated New York Transmission Owners Regarding Criteria for the Creation of New Installed Capacity Zones in New York, Docket No. ER04-449-023, Mar. 8, 2011.

Before the Federal Energy Regulatory Commission, Second Supplemental Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2011-14 Capability Years, Docket No. ER11-2224-004, May 4, 2011.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of Consolidated Edison Company of New York, Inc., Orange and Rockland Utilities, Long Island Power Authority, New York Power Authority, the City of New York and the New York Association of Public Power Regarding the New York ISO's Procedures for Mitigating Offers Submitted by Entrants into the New York City Installed Capacity Market, Docket No. EL11-42-000, July 6, 2011.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2011-14 Capability Years, Docket No. ER11-2224-009, July 11, 2011.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Procedures for Mitigating Offers to Provide Installed Capacity Submitted by Resources in New Capacity Zones, Docket No. ER12-360-001, July 20, 2012.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Procedures for Calculating Real-Time Prices for Operating Reserves and Regulation During Localized Scarcity Conditions, Docket No. ER13-909-000, April 4, 2013.

Before the New York State Public Service Commission, Affidavit Submitted on Behalf of Niagara Mohawk Power Corporation d/b/a National Grid Regarding Whether Proposals to Repower Generators at Dunkirk are in the Interest of Consumers, Case No. 12-E-0577, May 17, 2013.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Indicated New York Transmission Owners Regarding the Causes of Locational Differences in Installed Capacity Prices and Measures Proposed to Provide Exemptions from Offer Caps for Suppliers Lacking an Incentive to Withhold Capacity, Docket No. ER13-1380-000, May 21, 2013.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the Indicated New York Transmission Owners Regarding a Proposal to Apply Offer Floors to Installed Capacity Offers Submitted by Generators Receiving Revenue Under Reliability Support Services Agreements, Docket No. EL13-62-000, May 30, 2013.

Before the New York State Public Service Commission, Supplemental Comments Submitted on Behalf of Niagara Mohawk Power Corporation d/b/a National Grid Regarding Whether Proposals to Repower Generators at Dunkirk are in the Interest of Consumers, Case No. 12-E-0577, August 16, 2013.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2014-17 Capability Years, Docket No. ER14-500-000, Jan. 10, 2014.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of Consolidated Edison Company of New York, Orange and Rockland Utilities, New York State Electric and Gas, Rochester Gas and Electric and Central Hudson Gas and Electric Regarding a Competitive Entry Exemption from the Offer Floor Mitigation Applied to Entrants in New York's Installed Capacity Market, Docket No. EL15-26-000, Jan. 30, 2015.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of New York Public Service Commission, New York Power Authority and New York State Energy Research and Development Authority Regarding a Self-Supply Exemption from the Offer Floor Mitigation Applied to Entrants in New York's Installed Capacity Market, Docket No. EL15-64-000, May 8, 2015.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the Determination of Whether a Contract Provides for Above-Market Payments, Docket No. EL13-62-002, Feb. 2, 2016.

Before the Federal Energy Regulatory Commission, Affidavit Submitted on Behalf of the New York Transmission Owners Regarding the New York ISO's Proposed Installed Capacity Demand Curves for the 2017-18 Capability Year and Proposed Parameters for Determining Installed Capacity Demand Curves for the 2018-21 Capability Years, Docket No. ER17-386-000, Dec. 9, 2016.