UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc.) Docket No. ER11-2224-000

REQUEST FOR LEAVE TO ANSWER AND ANSWER OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC

Pursuant to Rules 212 and 213 of the Federal Energy Regulatory Commission's ("Commission") Rules of Practice and Procedure,[1] the New York Independent System Operator, Inc. ("NYISO") submits this request for leave to answer, and its answer to, the protests submitted in this proceeding. For the reasons set forth below, the protests should be rejected and the Commission should issue an order accepting the NYISO's proposed amendments to Section 5.14.1.2 of its Market Administration and Control Area Services Tariff ("Services Tariff") without any modifications and without a refund condition by January 28, 2011.

I. REQUEST FOR LEAVE TO ANSWER

The pleadings to which the NYISO seeks to respond are styled as both "comments" and "protests." The Commission's regulations allow answers to "comments" as a matter of right. The Commission has discretion[2] to accept answers to protests and has done so when they help to clarify complex issues, provide additional information, or are otherwise helpful in the Commission's decision-making process.[3] The Commission should follow its precedent and

[1] 18 C.F.R. §§ 385.212 and 385.213 (2010).

[2] *See* 18 C.F.R. § 385.213(a)(2).

[3] *See Black Oak Energy, L.L.C. v. PJM Interconnection, L.L.C.*, 125 FERC ¶ 61,042 at P 14 (2008) (accepting answer to rehearing request because the Commission determined that it has "assisted us in our decision-making process."); *FPL Energy Marcus Hook, L.P. v. PJM Interconnection, L.L.C.*, 123 FERC ¶ 61,289 at P 12 (2008) (accepting "PJM's and FPL's answers [to rehearing requests], because they have provided information that assisted us in our decision-making process"); *New York Independent System Operator, Inc.*, 123 FERC ¶ 61,044 at P 39 (2008) (accepting answers to answers because they

accept the NYISO's answer in this instance.[4] The issues in this proceeding are complex and will have a significant impact on the Installed Capacity ("ICAP") Demand Curves[5] and thus on both Capacity markets and consumers. This answer will help the Commission to better understand the issues and the consequences of its decisions. In addition, this answer corrects a number of mischaracterizations and misstatements and thus will help the Commission with the benefit of an accurate record.

II. ANSWER

A. The NYISO Has Supported its Proposed ICAP Demand Curves with Substantial Evidence and the Commission Should Accept Them Without Requiring Any Modifications

The NYISO's November Filing[6] proposed tariff amendments to define the ICAP Demand Curves for Capability Years 2011/2012, 2012/2013, and 2013/2014. A number of the November Filing's proposed amendments have been the subject of protests by: (i) the Independent Power Producers of New York, Inc. ("IPPNY"); Astoria Generating Company, the NRG Companies, and TC Ravenswood which filed jointly ("In-City Incumbent Generators"); and other generation owners (IPPNY, In-City Incumbent Generators, and other generator owners, together, the "Generator Interests"), on the one hand; and (ii) the New York Transmission Owners

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provided information that aided the Commission's decision-making process); *Morgan Stanley Capital Group, Inc. v. New York Independent System Operator, Inc.*, 93 FERC ¶ 61,017 at 61,036 (2000) (accepting an answer that was "helpful in the development of the record ..... ").

[4] In addition, if the Commission deems Rule 385.213(d)(1) to be applicable, the NYISO respectfully requests that the Commission exercise its discretion and accept this Answer one day out-of-time.

[5] Terms with initial capitalization herein have the meaning set forth in the Services Tariff and if not defined therein, the meaning set forth in the NYISO's Open Access Transmission Tariff ("OATT").

[6] *New York Independent System Operator, Inc., Tariff Revisions to Implement Revised ICAP Demand Curves for Capability Years 2011/2012, 2012/2013, and 2013/2014,* Docket No. ER11-2224-000 (November 30, 2010) ("November Filing").

("NYTOs")[7], the New York State Consumer Protection Board ("NYCPB"), the City of New York (the "City"), the New York State Public Service Commission ("PSC"), and the Multiple Intervenors (for ease of reference when their comments on an issue are aligned, referred to herein collectively as the "Load Interests"), on the other hand. The Generator Interests criticize elements of the November Filing that they assert would make the new ICAP Demand Curves too low.[8] The Load Interests criticize elements that they assert would make the curves too high.[9]

The NYISO's proposed ICAP Demand Curves are based on the facts and analyses developed by its staff and Consultant[10] as well as the NYISO's own independent analysis and expert judgment. The NYISO's staff and independent Board of Directors ("Board") have undertaken an extensive stakeholder process to develop the proposed new ICAP Demand Curves and the contents of the November Filing were informed by stakeholder input. As was demonstrated by the November Filing, and as is further illustrated by the affidavits attached to this Answer, the NYISO's proposals are well-reasoned and satisfy all applicable Services Tariff requirements. They are properly calculated to send the appropriate price signals to both existing

[7] The NYTOs as defined in their pleading are Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., Long Island Power Authority, Niagara Mohawk Power Corporation, d/b/a Nation Grid plc, New York Power Authority, New York State Electric & Gas Corporation, Orange & Rockland Utilities, Inc., and Rochester Gas & Electric Corporation.

[8] *See, e.g.*, In-City Incumbent Generators at 2 (stating that "[a]t every turn, the NYISO's unsupported judgment calls have lowered the ICAP Demand Curves"); IPPNY at 4-5 (stating that "the NYISO's proposed Demand Curves are significantly understated below the cost of new entry for a peaking unit in each capacity region").

[9] *See, e.g.,* City of New York at 7-11 (arguing that the ICAP Demand Curves should not be increased); Multiple Intervenors at 16 (claiming that the NYISO has a "myopic preoccupation with preserving generator revenues"); NYTOs at 16 (arguing that the proposed winter-summer adjustment will result in setting the ICAP Demand Curve "too high").

[10] As in the November Filing, for convenience, all references to "the Consultant" encompass the team of NERA Economic Consulting ("NERA"), and Sargent & Lundy ("S&L") as a subcontractor to NERA.

Installed Capacity Suppliers and potential new entrants in order to encourage efficient investment in Capacity.[11]

Given the rhetorical excesses of certain protestors, it is worth emphasizing that the NYISO is a not-for-profit, impartial, and independent entity with no financial stake in the outcome of this proceeding. The NYISO's only interest is that the ICAP Demand Curves are set at a level at which they will "improve system and resource reliability by valuing the ICAP resources available above the system's required levels, and provid[e] more effective economic signals for new investment."[12] Achieving these objectives requires the NYISO to exercise judgment to avoid setting the ICAP Demand Curves too low or too high. It is therefore ironic, at best, that some Generator Interests seeking to move the proposed curves to suit their interests[13] accuse the NYISO of practicing a "results oriented" approach to defining the curves.

Some of the protests complain that the NYISO should not have departed from the Consultant's recommendations regarding excess Capacity level estimates and the escalation factor.[14] Such arguments overlook the fact that the Consultant did not object to those variations and believed that the NYISO's proposal as a whole was "reasonable and consistent with the underlying objectives of the ICAP Demand Curves."[15] The Affidavit of Mr. Eugene T. Meehan, NERA Senior Vice President (the "Meehan Affidavit," Attachment 1 to this Answer), re-emphasizes that the Consultant's opinion is that the NYISO's escalation factor

[11] It should be noted that Demand Side Resources are both already ICAP Suppliers and expected new entrants in the NYISO-administered ICAP markets.

[12] *New York Independent System Operator, Inc.,* 122 FERC ¶ 61,064 at P 2 (2008) ("Second DCR Order").

[13] The In-City Incumbent Generators' protest is the most unfortunate example of this tendency. In Section B below, the NYISO responds briefly to its assorted mischaracterizations and histrionic insinuations regarding alleged biases.

[14] In-City Incumbent Generators at 12.

[15] November Filing at 4.

recommendations were reasonable.[16] Moreover, the independent Market Monitoring Unit ("MMU") specifically concluded that the NYISO's adjustments to the Consultant's recommendations, with one exception, were reasonable.[17] The Commission has previously accepted NYISO ICAP Demand Curve proposals that differed from its Consultant's recommendations when the NYISO concluded that modifications were warranted.[18] The NYISO has offered more than sufficient support for the Commission to do so again in this proceeding in the form of the affidavits and reports that accompanied the November Filing and the affidavits submitted with this Answer.

The Generator Interests essentially take the position that the NYISO's judgment cannot support any departure from the Consultant's recommendations and indeed should have no weight,[19] at least when it would result in lower Capacity prices. The In-City Incumbent Generators go so far as to contend that Mr. Lawrence's affidavit has no evidentiary value, in part because his views are the same as the NYISO's.[20] Such arguments are absurd on their face. The

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[16] *See, e.g.,* Attachment 1, *Affidavit of Eugene T. Meehan* at P 15 ("In my opinion, NYISO has made reasonable decisions with respect to escalation both in 2007 and in the instant reset.") It is therefore false for the In-City Incumbent Generators to suggest that the November Filing's description of the Consultant's view was not accurate. *See* In-City Incumbent Generators at n. 50.

[17] November Filing, Affidavit of Dr. David B. Patton at P 8 ("Many of the NERA/S&L Report's specific assumptions incorporate a measure of independent judgment. I believe that the assumptions used, as adjusted in the NYISO Report and as included in the NYISO's filing, fall within a reasonable range for such assumptions with one exception..... ").

[18] *See, e.g.,* Second DCR Order at PP 26, 31, 60-61 (accepting NYISO modifications to excess Capacity level estimates recommended by NERA based on an analysis by Mr. David Lawrence and accepting the NYISO's judgment not to include an additional risk factor that NERA had recommended).

[19] In-City Incumbent Generators at 14-15.

[20] *See* In-City Incumbent Generators at n. 80 ("Mr. Lawrence does not appear to be offering, or purporting to offer, his expert opinion, but rather appears merely to be reporting the views of his employer, the NYISO.") Mr. Lawrence's lead role in the design and implementation of the NYISO's ICAP product, including in the development of the current and prior ICAP Demand Curve reset proposals, makes him as an impartial and credible expert on the subject. The NYISO Report that was adopted by the Board largely reflects his judgment regarding the appropriate level of various ICAP Demand Curve parameters, including the appropriate excess Capacity level estimate. Moreover, Mr.

NYISO is the independent, impartial, and expert administrator of the New York Capacity markets. Its independence enhances its credibility, and that of its employees, rather than diminishing it. Moreover, the Services Tariff presumes that the NYISO will exercise its judgment in accepting or rejecting the various recommendations of its Consultant, MMU, and stakeholders regarding the ICAP Demand Curves.[21] Had the NYISO simply accepted all of its Consultant's recommendations it presumably would have been challenged by protestors for allegedly failing to discharge a tariff obligation to exercise judgment. The Commission itself has acknowledged that the establishment of key ICAP Demand Curve parameters is "essentially a judgment....."[22]

In short, the NYISO has supported the assumptions underlying the November Filing with substantial evidence demonstrating that the revised ICAP Demand Curves are both just and reasonable and consistent with the underlying objectives of the ICAP Demand Curves. The protests, notwithstanding the length and acerbity of some of their arguments, fail to show that the revised ICAP Demand Curves are unjust or unreasonable. It is possible that ICAP Demand Curves produced using alternative assumptions might also be just and reasonable but that does not make the proposals set forth in the November Filing unjust, or unreasonable, or "outside the

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Lawrence's testimony in the November Filing does not consist "entirely of legal argument" and the single example proffered to support the allegation is incorrect: Mr. Lawrence's description of the NYISO's obligation to estimate excess Capacity levels based on conditions "equal to or in slight excess of the minimum required Capacity" is a statement of fact that was clearly established by the Second DCR Order. If Mr. Lawrence's affidavit constitutes a legal argument, which the NYISO disputes, then the same would unquestionably be true of various affidavits submitted by the Generator Interests. *See, e.g.,* In-City Incumbent Generators, Joint Affidavit of Richard L. Levitan, *et. al* at P 17 (arguing that they have developed recommendations that are "just and reasonable"); and IPPNY Protest, Affidavit of Jonathan A. Lesser at PP 6, 48, 54 (arguing that accepting the NYISO's proposals would amount to a "regulatory taking").

[21] *See* Services Tariff §§ 5.14.1.2.7, 5.14.1.2.8.

[22] Second DCR Order at P 54 ("we note that the choice of escalation factor is essentially a judgment informed by analysis of cost and inflation trends").

zone of reasonableness" mandated by the Federal Power Act.[23] The Commission should therefore issue an order accepting the NYISO's proposed tariff amendments by January 28, 2011 without requiring any modifications and without establishing a paper hearing or a refund condition.[24]

B. False Claims of Bias Should Not Distract the Commission from the Magnitude of the Unwarranted Capacity Price Increases that the Generator Interests Propose

The In-City Incumbent Generators repeatedly make inaccurate and unsubstantiated allegations that the NYISO is biased against them.[25] They offer no explanation of why the NYISO might harbor such a bias and the facts in this proceeding, in which the NYISO has made determinations some which have the effect of moving the ICAP Demand Curves higher and other which move them lower, contradicts their claim.[26] Their allegation also conflicts with the fact that the November Filing included a number of proposals that have drawn protests from Load Interests, and this Answer likewise objects to a number of Load Interest proposals that would unreasonably decrease the ICAP Demand Curves. The NYISO made these

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[23] *See, e.g.,* Second DCR Order at P 14, n. 12 ("The Commission does not need to show that other proposals that arguably fall within a zone of reasonableness are not just and reasonable and indeed, we must approve NYISO's proposals if supported as just and reasonable even if there are other just and reasonable proposals.") *Citing Midwest Indep. Trans. Sys, Operator,* 118 FERC ¶ 61,209 at P 67 (2007); *FPC v. Conway Corp.,* 426 U.S. 271, 278 (1976) ("there is no single cost-recovering rate, but a zone of reasonableness.").

[24] See Section II.L.2 below for a discussion of the problems that setting a refund condition would bring.

[25] *See, e.g.*, In-City Incumbent Generators at 40.

[26] The In-City Incumbent Generators repeatedly point to an outlier 2003 Initial Decision on cost allocation issues. *See* In-City Incumbent Generators' at 39. As demonstrated in this pleading, their several uses of quotes from the Initial Decision are unsubstantiated. Additionally, however, their reference to that document is misleading. The findings of the 2003 Initial Decision were never accepted by the Commission, and all parties to the underlying proceeding agreed to ask the Commission to vacate them. This is hardly "evidence" of bias today. Such references only clutter the record and create a distraction from both the issues at hand and the fact that there is clear support for the NYISO's ICAP Demand Curves.

determinations, as well as those that the Generator Interests oppose, based on the principled exercise of its independent judgment.

Similarly, the In-City Incumbent Generators wrongly imply that the NYISO inappropriately instructed the Consultant not to opine on the policy dimension of the deliverability and tax abatement questions.[27] That request was made because, in contrast to the host of economic and technical issues that the Consultant was engaged to address, those two questions involve additional legal and government administration considerations. The NYISO properly asked the Consultant to provide information on the cost impacts including and excluding SDU and property tax costs could have but then made its own judgment on the legal and administrative questions.

Allegations of bias by the In-City Incumbent Generators ring especially hollow because they failed to raise a number of the concerns included in their protest during the stakeholder process or even in their written or oral presentations to the NYISO Board. After stakeholders worked diligently for nearly a year in the stakeholder process, the NYISO (and presumably stakeholders other than the Generator Interests) only learned that the following issues were of concern to the In-City Incumbent Generators and IPPNY: (i) New York City SDU costs,[28] (ii) In-City System Upgrade Facility ("SUF") costs; (iii) the purported relevance of tax assessments on generators in Upstate New York municipalities on New York City tax abatements; (iv) several of the econometric issues described by Dr. Carlson; and (v) the LMS100 peaking unit qualification under the technical standards of New York City's Third Amended and Restated Uniform Tax Exemption Policy ("UTEP"). Stakeholders are not required to flesh out

[27] In-City Incumbent Generators, at 11, n. 50 and Levitan Affidavit at P 54.

[28] For ease of comprehension "SDU costs" are sometimes referred to as "deliverability costs" throughout this Answer.

all of their legal and technical arguments during the extensive stakeholder process associated with the ICAP Demand Curve reset but they should be expected to identify all of their concerns so that the NYISO staff and Board may consider them.

Failing to raise issues in a timely manner weakens the stakeholder process and is unfair to those that participate fully. It also contravenes more than a decade of Commission precedent discouraging parties from making "end runs" around ISO/RTO governance mechanisms by raising issues at the Commission for the first time.[29] Accusing the NYISO of bias because it did not agree with positions that were never presented is not acting in good faith.[30] The same is true of the In-City Incumbent Generators' tendency to attack the NYISO for moving away from preliminary positions that were clearly taken for discussion purposes during stakeholder meetings.[31] The fact that the NYISO's thinking has evolved over time demonstrates its attention and responsiveness to stakeholders, not bias.

The Commission should not allow the Generator Interests' repeated allegations to obscure the magnitude of the increases that they are proposing to the ICAP Demand Curves. As discussed in the attached affidavit of Mr. David Lawrence ("Lawrence Affidavit," Attachment 2 hereto) and depicted in the Exhibits to the Lawrence Affidavit, if the Commission were to accept IPPNY's proposals the result would be an increase in the 2011-2014: (1) NYCA Demand Curve

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[29] *See, e.g., ISO New England,* 128 FERC ¶ 61,266 at P 55 (2009) (declining to grant a party's specific request for relief because the Commission "will not ... circumvent that stakeholder process"); *New York Independent System Operator, Inc.*, 126 FERC ¶ 61,046 at PP 54 (2009) (stating that while a proposal "may have merit" the proposal should be "presented to and discussed among ... stakeholders")*; New York Independent System Operator, Inc.*, 122 FERC ¶ 61,209 at PP 24, 26 (2008) (declining to direct requested revisions without "giving other stakeholders an opportunity for comment" because it "would inappropriately circumvent [the] stakeholder process"); *New England Power Pool*, 107 FERC ¶ 61,135 at PP 20, 24 (2004) (declining to accept changes proposed for the first time in a FERC proceeding by an entity that participated in the stakeholder process because the "suggested revisions have not been vetted through the stakeholder process and could impact various participants").

[30] The NYISO addresses and refutes these points in subsequent sections of this answer.

[31] *See, e.g.,* In-City Incumbent Generators at n. 71, Levitan Affidavit at P 48.

by between 20 and 36 percent; (2) the LI Demand Curve by between 76 and 97 percent; and (3) the NYC Demand Curve by between 87 and 111 percent.[32]

Increasing the ICAP Demand Curves to reflect cost increases that the ICAP Demand Curve peaking units are reasonably expected to incur is appropriate. However, increasing them based on erroneous and unreasonable assumptions, and misleading information, is unwarranted, as demonstrated in Sections C, D, F, G, H, and J, below.

C. The November Filing's Peaking Unit Choices and Related Determinations Were Reasonable

1. It Is Reasonable to Use a Frame 7A Unit to Set the NYCA Demand Curve

The November Filing proposed to use a Frame 7A unit in the Capital Zone as the peaking unit for purposes of setting the ICAP Demand Curve for the NYCA. Load Interests erroneously assert that the ICAP Demand Curve for the NYCA should instead be based on the net cost of developing, constructing, and operating a LMS100 on Long Island. They claim that their recommendation is consistent with the Services Tariff, and that the NYISO's proposal is not, on the theory that a Frame 7A unit located in the Capital Zone is not economically viable on a NYCA-wide basis.[33] Further, the Load Interests contend that language in the NYISO's ICAP Manual which affirms that a Rest-of-State ("ROS") peaking unit is to be used to set the NYCA Demand Curve, is inconsistent with the Services Tariff's economic viability requirement and must therefore be revised to conform to the tariff.[34]

The Commission should reject these arguments because the Services Tariff does not permit the NYCA Demand Curve to be set using a Long Island (or New York City) peaking unit.

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[32] *See* Lawrence Affidavit at P 8.

[33] *See, e.g.,* NYTOs at 2-6; NYCPB at 6-7.

[34] NYTOs at n. 11.

As was explained in the November Filing, the Services Tariff requires that the NYCA Demand Curve be based on the costs of a peaking unit located in the ROS area.[35] This point is clarified and confirmed by the ICAP Manual which is in no way inconsistent with the Services Tariff.[36] In fact, it is the Load Interests who would effectively nullify tariff language by construing away the ROS limitation. As further shown in the November Filing, the Consultant's analysis indicated that a Frame 7FA unit in the Capital Zone would cost less on a $/kW basis than other alternatives in the ROS and is therefore economically viable.

The Commission should also reject Generator Interests' arguments that if the NYISO is not required to include SDU costs in the peaking unit's costs, then the NYCA peaking unit must be located in the Lower Hudson Valley, which would in turn require the use of an LMS100 for environmental reasons.[37] As is explained in Section II.D below, SDU costs are not properly included in the peaking unit's cost. The Frame 7FA unit had a lower fixed cost on a $/kW basis than other technologies and the Commission has previously accepted it as the peaking unit for the NYCA.[38] It is true that the Consultant provided estimates for a peaking unit in the Lower Hudson Valley. The Generator Interests' arguments based on those estimates are actually arguments for the creation of a Lower Hudson Valley Capacity zone, a question that is outside the scope of this proceeding.[39] The Services Tariff's ICAP Demand Curve provisions provide

[35] November Filing at 9, and Services Tariff at § 5.14.1.2.

[36] *See* November Filing at n. 26, *citing*, ICAP Manual at § 5.5(1).

[37] IPPNY at 41-42, GenOn at 8.

[38] *New York Independent System Operator, Inc.*, 122 FERC ¶ 61,064 at P 22 (2008) (accepting the use of a Frame 7FA unit for the NYCA in the 2008-2011 Demand Curve Reset process).

[39] See Section II.E for further discussion of this issue.

only for the NYISO to define three ICAP Demand Curves for its three existing Capacity zones.[40] The case for considering new Capacity zones in this proceeding is especially weak given that the NYISO has just made a compliance filing in Docket No. ER04-449-023 to establish criteria governing the possible future creation of new zones.

2. The NYISO's Proposal Regarding Site Remediation and Lease Costs Are Reasonable

The City and the NYCPB asserted that the NYISO unreasonably proposed: (1) a "50 percent adder to the land costs of the NYC [Demand Curve]… peaking unit to account for an assumption that the owner of such unit, as lessee, would accept full responsibility for all site remediation costs;"[41] and (2) a cost adder to the lease rate for the NYC peaking unit.[42] They further argued that any adder to the site remediation costs must be offset by a reduction in lease costs.[43] However, the NYISO's proposal did not include either a fifty percent site remediation adder to land costs or a lease rate adder for such costs. Also, neither the City nor NYCPB has presented any evidence to justify a reduction of lease costs.

The concern regarding site remediation costs appears to be based on a misunderstanding of the NYISO's proposal. As is explained in the attached affidavit of Mr. Christopher D. Ungate ("Ungate Affidavit," Attachment 3 hereto), the misunderstanding may stem from the fact that site remediation costs amount to a fifty percent adder to the amount of site preparation costs without site remediation costs.[44] As noted in the Ungate Affidavit, site remediation costs

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[40] Services Tariff § 5.14.1.2 (stating that "[t]hree ICAP Demand Curves will be established"). The existing Capacity zones are the New York Control Area ("NYCA"), New York City ("NYC"), and Long Island ("LI").

[41] City of New York at 11.

[42] City of New York at 11-12, NYCB at 6.

[43] *Id.*

[44] Ungate Affidavit at P 14.

account for less than one percent of the total engineering procurement and construction cost for the New York City peaking unit. The City's and the NYCPB's concern, even if not based on a misunderstanding, is thus greatly overstated.

Contrary to the City's and NYCPB's assertions, the November Filing's proposal did not include an explicit cost adder to the lease rate for site remediation that can be separated from the site remediation amount, as site leasing costs in NYC were based on market data.[45] Additionally, the City's and NYCPB's assertion that a reduction in the lease rate must be made to account for the NYISO's inclusion of site remediation costs in land costs should be rejected. No evidence has been submitted that shows that a developer would obtain a reduction in lease costs for site remediation. Even if the Commission were to find that a reduction is necessary, no data have been provided which would allow the NYISO to determine the amount of such reduction. The lease cost used for the November Filing's proposal is reasonable, as it is based on market data that reflects the costs that would have to be paid by a developer to lease the land on which the peaking unit would be built.

3. The November Filing's Proposed Estimates of New York City Interconnection Costs Are Reasonable

The NYISO's proposal included SUF costs in the peaking unit's costs based on the most recently available (at the time the estimates were completed)[46] historical data from three 2001 New York City generator interconnection projects.[47] The Generator Interests claim that the NYISO's analysis underestimated NYC Demand Curve peaking unit interconnection costs, because more recently available cost allocation data reflects higher SUF costs for In-City

[45] *Id.* at P 16.

[46] *Id.* at PP 18, 22.

[47] As explained further in the Ungate Affidavit, the 2001 costs were escalated to 2010 dollars. Ungate Affidavit at P 20. The Ungate Affidavit provides an estimate of the effect of using the Class Years 2009 and 2010 project data. *Id.* at P 22.

generation projects.[48] The Generator Interests provide an analysis which includes SUF costs incurred by four In-City generators in Class Years 2009 and 2010. The Generator Interests' protest on this point should be rejected because they have not shown that the November Filing's proposal is unreasonable.

The reasonableness of the data used in the Consultant's report is not undermined by the mere existence of the additional more recent project specific data. Consistent with other ICAP Demand Curve inputs, the costs used were not derived from incurred cost data, but rather were based on estimates developed utilizing the best available project data at the time the estimates were made. It would not be appropriate to use the Class Year 2009 and 2010 data relied on by the Generator Interests because those costs are still subject to the approval of the NYISO's stakeholder Operating Committee and will not be considered final until they are approved.[49] In addition, as stated in the Ungate Affidavit, the not-yet-approved cost estimates proffered by IPPNY "shows considerable variation in SUF costs on a $/kW basis."[50] Thus, Mr. Younger's affidavit and the NYISO draft reports to which it refers[51] only serves to demonstrate that, just like the 2001 data used by the Consultant to establish the peaking unit's costs, the SUF costs vary widely. The data also demonstrate that SUF costs will vary based on the voltage level of the interconnection or the location of the interconnection point. It does not, however, demonstrate that the data used by the Consultant are unreasonable. Therefore, the Commission should reject the Generator Interests' protests. The costs relied on by the Consultant for its

[48] IPPNY at 51-52, and Exhibit 2 - Affidavit of Mark Younger at PP 88-89.

[49] Those project cost allocations will not be presented to the Operating Committee until a date sometime in 2011 that will be after January 28, 2011, the date requested by the NYISO for a Commission order regarding these Demand Curves. As discussed in Section II.L.2, below, it is imperative for the ICAP Demand Curves to be established well before the start of the 2011/2012 Capability Year.

[50] Ungate Affidavit at P 19.

[51] IPPNY at Affidavit of Mark Younger n. 7.

estimates provide a sound basis for the SUF costs for the NYC peaking unit and are thus reasonable.

D. The November Filing's Proposal to Exclude SDU Costs from the Peaking Unit's Cost of New Entry Was Both Reasonable and Consistent with the NYISO Tariffs

The November Filing proposed to exclude SDU costs from the peaking unit's cost of new entry. Including SDU costs would not be an efficient means of encouraging development in areas where units would be deliverable. In addition, it would provide existing generators that were "grandfathered" under the Deliverability tariff provisions when they were established, and thus not required to pay for SDU costs, with a windfall from the resulting higher Capacity prices at the expense of all customers.[52] The November Filing further explained that even if the Commission were to conclude that the inclusion of deliverability costs would be appropriate, it would be premature to include such costs in the peaking unit's cost of entry, without considering their relation to the question of the establishment of a new Capacity zone in the NYCA.

The Generator Interests argue that exclusion of SDU costs is unreasonable because those costs were supposedly previously included in the peaking unit's costs, the NYISO's tariffs allegedly require their inclusion, and because a new generator in the NYC Capacity zone would necessarily incur SDU costs. The NYISO addresses each of these arguments in the following sections.

[52] The Commission has previously evaluated the effect of price increases to customers against "uncertain potential benefits" that "may encourage new economic entry" when determining not to include additional costs in the ICAP Demand Curves. *See Independent Power Producers of New York, et. al v. New York Independent System Operator, Inc.*, 125 FERC ¶61,311 at P 35 (2008) (finding against reopening the ICAP Demand Curves because "the adverse affect [sic] of price increases on customers in the current market for existing capacity must be weighed against the uncertain potential benefit to the market that such price increases may encourage new economic entry").

1. The Peaking Unit's Cost of Entry Did Not Previously Include SDU Costs

Any suggestions that including SDU costs in the peaking unit's cost of entry is required by NYISO cost allocation requirements or is consistent with the NYISO's past practices are simply incorrect. Additionally, it is not accurate to assert that "many, if not most, existing generators in New York City have incurred deliverability upgrade-related costs ..... "[53] Such assertions are based on a false premise that what would be classified as SDU costs today would necessarily have been classified as SUF costs in the past.[54] The contention that some portion of SUFs prior to the introduction of a deliverability requirement included the costs of facilities that would now be classified as SDUs is fundamentally misleading.

Prior to the implementation of the deliverability tariff provisions,[55] the NYISO's interconnection process did not include a deliverability standard and did not require upgrades to address deliverability.[56] The Generator Interests' assert that after the implementation of deliverability "the NYISO needed to modify and narrow the definition of 'System Upgrade Facilities,' which had previously covered all interconnection-related network upgrades … ."[57] In fact, no such modification or narrowing was necessary. The scope of facilities defined to be SUFs did not change as a result of the implementation of deliverability. Instead, the

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[53] In-City Incumbent Generators at 29.

[54] *Id.* at 37.

[55] *New York Independent System Operator, Inc.*, 126 FERC ¶61,046 at P 120 (2009) (accepting the deliverability tariff provisions effective October 5, 2008) ("January 2009 Deliverability Order").

[56] *See New York Independent System Operator, Inc.*, 111 FERC ¶61,347 at PP 13 (2005) (ordering the NYISO to include a second level of interconnection service that includes a deliverability component).

[57] In-City Incumbent Generators at 37. Further, Generator Interests' assertions in n. 129 that Network Access Interconnection Service included a deliverability component are false. *See* January 2009 Deliverability Order at P 4 (noting that "Network Access Interconnection Service did not address whether energy injected by the new interconnection can actually be delivered by the transmission system").

deliverability tariff revisions expanded the interconnection-related network upgrades defined by the NYISO process by adding the deliverability requirement and the term "System Deliverability Upgrades."[58] This addition created an entirely new category of required facilities that is distinct from SUFs.[59] Since the NYISO did not require the identification of SDUs before these modifications, prior ICAP Demand Curves could not have included SDU costs in the peaking unit's costs.

The Generator Interests rely on statements regarding the deliverability of the system made prior to the full deliverability test being finalized[60] to support their argument that SUFs funded by generators grandfathered from deliverability, must have contributed to the deliverability of the system. The argument fails for two primary reasons. First, the existing system was shown to have deliverability issues in Class Year 2008, which was the first Class Year Deliverability Study based on the full set of deliverability test assumptions.[61] Second, it does not follow that because generators funded SUFs and there is some level of deliverability on the existing system, SUFs necessarily contributed to the deliverability of the system. The Generator Interests provided no support for this assertion. As the Generator Interests

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[58] *See New York Independent System Operator, Inc.*, Joint Compliance Filing at 4-6, Docket No. ER04-449-017 (filed August 5, 2008) ("Deliverability Compliance Filing").

[59] *See* Deliverability Compliance Filing at Attachment I, blacklined Sheet No. 658A and 659.

[60] The statements by the NYISO and NYTOs cited by the In-City Incumbent Generators at n. 148 were made before the resolution of the Quebec/Existing Transmission Capacity for Native Load ("ECTNL") import issue. Also, the Generator Interests' contention at n. 148 that the Class Year 2007 Study shows that the system was deliverable prior to Class Year 2008 is misleading. The Class Year 2007 Deliverability Study was performed using assumptions, applied only to that Class Year, that did not model any megawatt level of external emergency assistance (*i.e.*, ECTNL 1080 MW and Quebec (via Chateauguay 1090 MW imports). The Class Year 2008 Deliverability Study, which used the final assumptions, including the modeling of those imports, showed that the system was not deliverable in Rest of State.

[61] *See,* Class Year 2008 Facilities Studies - *Part 2 Studies (Sections 11, 12, 13 only): Deliverability Study and System Deliverability Upgrade Facilities (SDU)*, November 2009 *available at* < http://www.nyiso.com/secure/webdocs/committees/oc/meeting_materials/2009-11-12/CY08_Facilities_Study_Part2_Deliverability_Study_Draft3_clean.pdf>.

acknowledge, existing generators were grandfathered, because their prior investments were made relying on provisions found in the then-current tariff provisions, which did not include a deliverability component.[62]

Past determinations of SUF costs in Class Year studies are irrelevant to the issue of the inclusion of SDU costs in the peaking unit's costs. Prior to Class Year 2007 the NYISO did not conduct the analyses necessary and now required to identify SDUs and no SUF was required for purposes of increasing deliverability or transfer capability. The first such final determination identifying SDUs and their associated costs was made in the Class Year 2008 Facilities Study, approved by the Operating Committee in accordance with NYISO OATT requirements in November 2009. Thus, no SDU costs could have been included in the peaking unit's costs for prior ICAP Demand Curves, as such costs did not exist and were not identified by the NYISO prior to Class Year 2008.

2. The NYISO's Tariffs Do Not Require the Inclusion of SDU Costs in the Peaking Unit's Cost of Entry

The Generator Interests are also wrong to claim that the NYISO's proposed exclusion of SDU costs contravenes the NYISO's tariffs. The Services Tariff does not prohibit the Commission from deciding that excluding SDU costs would be appropriate for the reasons that were articulated in the November Filing. As was noted above, SDU costs did not exist at the time of prior ICAP Demand Curve Reset proceedings, as the OATT provisions creating them, and attendant obligations, were not implemented until the Commission's order approving the deliverability tariff provisions.[63] Further, because those tariff provisions, including the cost allocation methodology for SDUs, were designed to provide proper signals to interconnection

[62] *Id.* at n. 148.

[63] *See* January 2009 Deliverability Order at P 120.

customers to encourage siting of generation in areas where Capacity would be deliverable, the NYISO's proposal to exclude such costs from the peaking unit's costs is consistent with the Commission's orders in the proceeding concerning the deliverability tariff provisions.[64]

3. The Generator Interests Have Failed to Counter the NYISO's Argument that Including SDU Costs May Dampen the Incentive to Choose Efficient Generator Locations

Finally, the Commission should reject Generator Interests' argument that there is no merit to the NYISO's concern that including SDU costs would distort signals for efficient location, particularly when applied to units in New York City ("NYC").[65] The Generator Interests indicate that only a "fantasy unit" in NYC would not incur SDU costs.[66] Contrary to the Generator Interests' misleading assertion, two actual projects in successive Class Years located in NYC were evaluated for deliverability did not incur SDU costs, *i.e.*, the Hudson Transmission Partners ("HTP") project in Class Year 2008 and the Bayonne Energy Center ("BEC") project in Class Year 2009.

The Generator Interests' examples from the current Class Year simply show that those specific projects' interconnection at those locations in New York City will incur some deliverability costs and do not refute the argument that the inclusion of SDU costs may distort signals for efficient location. The Generator Interests have failed to provide any analysis considering whether those projects could have avoided incurring those costs by changing certain aspects of the project (*e.g.*, such as interconnecting at a different point or voltage level). Also,

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[64] *See New York Independent System Operator, Inc.*, 122 FERC ¶61,267 at PP 42-49 (2008) (accepting the proposed cost allocation for SDUs because it allocates all of the costs necessary to make a project deliverable to interconnection customers, and only allocates a small percentage of costs of SDUs for highway facilities that create more system Capacity than required to make a project deliverable to LSEs).

[65] In-City Incumbent Generators at 40.

[66] *Id.*

unlike the determination for HTP which is final, the cost allocations relied on by the In-City Incumbent Generators have not yet been approved by the NYISO's Operating Committee. Those project cost allocations will not be presented to the Operating Committee until later in 2011 and should not be relied on for this ICAP Demand Curve reset.

E. Requests for the Creation of A New Capacity Zone or a New ICAP Demand Curve Are Beyond the Scope of this Proceeding

GenOn argues that the NYISO should be directed to establish a new Capacity zone for the Lower Hudson Valley region. It also requests that the NYISO be compelled to create an ICAP Demand Curve for its proposed new Capacity zone in time for the 2011/2012 Capability Year.[67]

Both requests are beyond the scope of the Services Tariff's ICAP Demand Curve provisions, for the reasons specified in Section II.C.1 above. Furthermore, because the Services Tariff does not currently include any provisions related to a Lower Hudson Valley Capacity zone establishing a separate ICAP Demand Curve for that area would be meaningless. The NYISO currently lacks the tariff authority, or any kind of tariff framework, to implement an ICAP Demand Curve for that area.

F. The November Filing Reasonably Assumed that the New York City Peaking Unit's Property Taxes Would Be Fully Abated

The November Filing explained that it was reasonable to assume that the New York City Industrial Development Agency ("NYCIDA") would grant tax abatements to the New York City Demand Curve peaking unit. It is reasonably foreseeable that imposing such taxes on a Demand

[67] GenOn at 8-9.

Curve peaking unit would increase In-City Capacity prices more than they would increase tax revenues and thus would harm New York City's interests more than it would help them.[68]

Generator Interests challenge this assumption and argue that the NYISO must assume that In-City generators will be assessed property taxes in all cases, or that failing, in a substantial percentage of them. They have failed, however, to offer any rationale for rejecting or modifying the November Filing's proposal on this issue. The ICAP Demand Curves should not be based on an assumption that the NYCIDA, a governmental entity, would exercise its discretion to act in a manner that is contrary to: (i) its constituents' economic interests; (ii) its own statutory mandate;[69] and (iii) its own public statements of willingness to confer significant tax benefits on generators that qualify for them under New York City's UTEP.[70] The NYISO should not be required to provide additional evidence demonstrating the obvious proposition that an entity will act in its own interest. Nor must the Commission require such unnecessary analyses before approving a reasonable proposal.[71]

The Generator Interests are likewise wrong to contend that the NYISO must include in the peaking unit's cost of entry the "reasonable costs" of "property taxes" that "new entrants" are expected to incur.[72] As an initial matter they have framed the issue inaccurately. It is only the cost of the peaking unit, not the costs of all new entrants, that is considered for purposes of setting the ICAP Demand Curves. The fact that some generators may have paid property taxes

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[68] *See* November Filing at 15.

[69] *See* Babis Affidavit at P 13 ("the NYCIDA's statutory mandate is to promote and encourage economic development, industrial expansion, and job retention and growth").

[70] *See, e.g.,* Babis Affidavit at 14.

[71] *See Associated Gas Distributors v. FERC*, 824 F.2d 981, 1008 (D.C.Cir.1987) ("Agencies do not need to conduct experiments in order to rely on the prediction that an unsupported stone will fall.")

[72] In-City Incumbent Generators at 27-28.

in the past[73] is irrelevant for the same reason and also because: (i) the ICAP Demand Curve reset exercise is forward-looking; and (ii) including past taxes in the peaking unit's cost entry would contradict the Generator Interests' arguments that the cost of entry must only reflect prospective costs that new generators are reasonably expected to incur.[74] The NYISO has in fact accounted for the peaking unit's reasonably anticipated property tax costs since it is reasonable to assume that the peaking unit would not be subjected to property taxes.

Mr. Perri's affidavit does not demonstrate that the New York City Demand Curve peaking unit would be ineligible for a property tax exemption under the UTEP's "objective" criteria. As is explained in the Ungate Affidavit, the peaking unit would satisfy the UTEP Article 1(e)(ii) subsection bb heat rate requirement.[75] The In-City Incumbent Generators' related claims that the In-City peaking unit would not meet the UTEP's so-called "subjective" criteria[76] must also fail because their claims is founded upon the implausible assumption that the NYCIDA would exercise its discretion in a manner that would be inconsistent with its own interests. Similarly, the In-City Incumbent Generators' assertion that the Commission not "credit speculation" about how the NYCIDA will exercise its discretion is itself based on speculation that the NYCIDA would act in a manner that contravenes its interests, statutory mandate, and public statements.

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[73] In-City Incumbent Generators at 29.

[74] It is disingenuous at best for the In-City Incumbent Generators to argue that they should receive windfall payments attributable to SDU costs that certain new entrants might face, but they themselves are exempt from, on the ground that new entrants' costs are the only relevant consideration, while simultaneously contending that the ICAP Demand Curves should be set to allow all generators to recover tax costs. See generally, In-City Incumbent Generators' Protest Section B, including the assertion at p. 50 that: "Because the reset is forward-looking, rather than backward-looking, generators will never recover what is lost during this cycle in any case." It is clear from that statement that the In-City Incumbent Generators are arguing in this case for their own revenues and not regarding the appropriate level for the Demand Curve Peaking unit.

[75] *See* Ungate at P 9.

[76] In-City Incumbent Generators at 48.

The Hiscock & Barclay ("H&B") letter[77] does not counter the November Filing's reasoning in any way and should be disregarded. As a preliminary matter, it is not a proper affidavit. It is simply an outside law firm's speculation to its individual client. In addition, it's speculation that New York City's tax abatement policies may parallel those followed by other municipalities in New York State is a fundamentally flawed assumption because the other municipalities referenced in the letter are not governed by the UTEP and thus cannot reasonably be used to predict how the UTEP would be applied. There is no evidence that any of the Industrial Development Authorities that entered into the payment-in-lieu-of-tax agreements mentioned by H&B did so pursuant to specific policies with guidelines for granting a specific type of generation project tax abatement. No other New York State municipality is similarly situated to New York City because no other municipality's or Industrial Development Agency's borders are the same as a NYISO Capacity zone. Thus, no other municipality's tax abatement decisions are as directly linked to the Capacity prices that the municipality's agencies, and constituents would pay. In short, there is no evidentiary value to extrapolating how one governmental entity would behave based on the behavior of unrelated governmental entities operating under different legal requirements and facing vastly different circumstances. H&B's letter provides no support whatsoever for its conclusion that "it is far more likely that any new project would realize a tax burden consistent with those imposed in other jurisdictions, throughout the State ....."[78]

The Generator Interests' remaining arguments can be disposed of briefly. Their allusions to the canons of statutory construction[79] are irrelevant because the NYISO is not disputing that

[77] *See* In-City Incumbent Generators at Attachment D.

[78] *See* H&B Letter at 2.

[79] In-City Incumbent Generators at 45.

the UTEP allows the NYCIDA to exercise some discretion. Instead, the NYISO is contending that it is reasonable to assume that the NYCIDA will exercise that discretion consistent with New York City's interests. The In-City Incumbent Generators are wrong to equate a government entity's pursuit of policies with a private entity's hypothetical market manipulation scheme.[80] Finally, assuming that the NYCIDA would grant full tax abatement would not distort the In-City Buyer Side Mitigation Measures[81] because the ICAP Demand Curves would be set based on the reasonable assumption that the peaking unit's property taxes would be abated.[82]

G. The November Filing's Adjustments to the Consultant's Recommended Excess Capacity Level Estimates Were Reasonable

The November Filing explained the NYISO's reasons for revising the Consultant's recommended excess Capacity levels. The Load Interests question the NYISO's justification and argue, as a preferred position, that the ICAP Demand Curves "should be developed under the assumption that there is no surplus Capacity, consistent with the intent of the Demand Curves..... " which they state is "to ensure that the revenues provided by the ICAP market are sufficient to induce entry when the NYCA or a Locality is at the minimum Capacity requirement."[83] The Generator Interests take the opposite view and argue that the NYISO's revisions have made the excess Capacity estimates unrealistically low because they differ from

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[80] *Id.* at 49.

[81] The In-City Buyer-Side Mitigation Measures are mitigation rules contained in Attachment H of the NYISO's Services Tariff that guard against the exercise of buyer-side market power in the In-City ICAP markets.

[82] The Generator Interests appear to attach substantial weight to the NYCEDC's statements that tax abatement decisions will be made with an eye towards lowering Capacity prices. *See* In-City Incumbent Generators at 46. The NYISO would respectfully submit that they cannot have it both ways. If Generator Interests are prepared to assume that a governmental entity would seek to lower Capacity prices for purposes of their argument regarding the market power mitigation measures then they cannot reasonably deny that the same entity should be expected to grant full tax abatements because of the impact on Capacity prices.

[83] *See, e.g.,* NYTOs at 7.

the estimates approved in the last ICAP Demand Curve reset. They also note that the Consultant recommended that the NYISO use higher estimates and that the MMU has argued that two of NYISO's three estimates are too low.

In reality, the Services Tariff authorizes the NYISO to review the "localized levelized embedded cost a peaking unit … to meet minimum capacity requirements"[84] and to set the ICAP Demand Curves based on an assumption that actual ICAP levels will "slightly exceed" minimum requirements. The Commission has clearly upheld the NYISO's reading of the Services Tariff on this point.[85] The Load Interests may not ignore the Commission's interpretation any more than they may read the "equal or slightly exceed the minimum [ICAP] requirement" language out of the Services Tariff. Similarly, the Generator Interests' suggestion that the "equal or slightly exceed" language is only applicable to Energy and Ancillary Services revenues fails in the face of the Commission's precedent.[86]

The Generator Interests resort to claiming that because the Commission found a four percent excess Capacity level for the NYC Capacity Zone to be appropriate in the Second DCR Order it necessarily follows that the NYISO's revised excess Capacity levels are too low. The flaw in their reasoning is the fact that the NYISO has proposed to refine its analysis since the last ICAP Demand Curve reset. Specifically, as Mr. Lawrence's affidavit in support of the November Filing noted, the NYISO has determined that it would be better to compute excess Capacity levels using the peaking unit, rather than a combined cycle plant as was done in 2007.

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[84] Services Tariff at § 5.14.1.2(i).

[85] Second DCR Order at P 31 ("The Commission agrees that some small level of expected capacity over the minimum requirement is appropriate.") and n. 21 ("In an April 21, 2005 order accepting NYISO's previous ICAP Demand Curve parameters, the Commission accepted NYISO's proposal to determine the parameters based on energy and ancillary service revenue estimates that would arise when supply conditions are near, but slightly higher than, the minimum capacity requirement. The reason was to create incentives for capacity investment not to fall below the minimum requirement").

[86] *See, e.g.,* IPPNY at 24.

The advantage is greater consistency with the other parameters used to establish the ICAP Demand Curves, all of which are tied to the peaking unit. The fact that a combined cycle plant was used for the NYISO's 2007 ICAP Demand Curve proposal does not, and should not, preclude the NYISO from proposing to use the peaking unit now.[87]

The Generator Interests and the MMU miss the point when they argue that the NYISO's excess Capacity estimates might not reflect actual market conditions. As the November Filing explained,[88] the Services Tariff directs the NYISO to set excess Capacity levels on conditions "equal to or in slight excess of the minimum required Capacity" not based on evaluations of what conditions are most likely to exist at any given time. The Consultant agreed with the NYISO's assessment of the nature of the exercise noting that the "[e]xcess adjustment is clearly not designed to compensate for actual excesses, but only for excesses that will occur near the minimum installed capacity requirement."[89] The NYISO has fulfilled its tariff obligation by assuming an average level of excess equal to one half the size of the peaking unit, an amount that both reflects conditions that could exist (and that thus are not in fact "unrealistic") and that slightly exceeds the minimum requirements. The fact that a higher level of excess, derived from the use of a combined cycle unit, was accepted in the Second DCR Order does not mean that a lower estimate is unjust, unreasonable, unlawful, or unsupported now.[90] Likewise, the fact that certain protestors and, with respect to NYC and LI, the MMU, believe that higher excess

[87] The NYISO would also note that the MMU does not object to this aspect of the NYISO's excess Capacity factor analysis. *See* November Filing, Affidavit of Dr. David B. Patton at P 27.

[88] November Filing at 17.

[89] *Id.* at 18.

[90] As was noted the November Filing, the NYISO conducted sensitivity analyses regarding its proposed excess capacity estimates. *See* November Filing at 18. The Commission has previously accepted the NYISO's proposed excess capacity estimates that differed from the Consultant's based principally on a sensitivity analysis. *See* Second DCR Order at PP 31-34.

estimates are more likely to reflect actual market conditions does not make those estimates consistent with the Services Tariff or necessitate the rejection of the November Filing's proposal.

Finally, IPPNY argues that the NYISO's proposed revisions to the Consultant's excess Capacity estimates constitute a "regulatory surprise" that will create uncertainty and discourage new entry.[91] The ICAP Demand Curves are not designed solely for new entrants. All stakeholders have an interest in them. The Services Tariff puts all Market Participants on notice that the stakeholder process and the reset will occur every three years. There is stability in the level of key ICAP Demand Curve parameters and it is predictable that the ICAP Demand Curves will be periodically re-examined and the value at which they are reset may change. The Commission has recognized that the need to periodically adjust the Demand Curves outweighs any possible uncertainty that might result from triennial adjustments.[92] There is thus no merit to IPPNY's concerns regarding market certainty. On the other hand, as is discussed in Section II.I.3 below, making the ICAP Demand Curves effective subject to refund, as proposed by certain of IPPNY's members, would create harmful market uncertainty.

H. The Consultant's Econometric Analysis of Expected Energy and Ancillary Services Revenues ("Net Revenue Offsets") Was Reasonable

The November Filing adopted the Consultant's Net Revenue Offset recommendations. The In-City Incumbent Generators argue that the Consultant's independent econometric analysis includes two flaws that allegedly caused it to overstate projected Energy and Ancillary Services revenues and thus to understate the reference point price. They propose that the analysis be

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[91] IPPNY at 28.

[92] *See New York Independent System Operator, Inc.,* 103 FERC ¶61,201 at P 61 (2003), *reh'g denied*, 105 FERC ¶61,108 (2003) (accepting the three-year reset process, finding that it is "reasonable to expect that the [Demand Curve] parameters may need adjustment over time" and "the amount of uncertainty caused by any potential adjustment" that "reflected stakeholder input and independence" is outweighed by "employing a demand curve based on irrelevant or outdated parameters.").

"corrected" in a manner that would significantly increase the ICAP Demand Curves. The attached affidavit of Jonathan Falk ("Falk Affidavit", Attachment 4 hereto) explains that In-City Incumbent Generators' proposed "corrections" would yield unreasonable and unjustifiable results.[93] The Falk Affidavit also explains why: (i) the Consultant's use of a three year historical period to estimate model parameters was reasonable;[94] (ii) the In-City Incumbent Generators' contentions regarding serial correlation and heteroskedascity are flawed;[95] and (iii) their proposal to use one-day lagged LBMP as a regressor to "correct" serial correlation is fundamentally misplaced.[96]

I. The November Filing's Proposal to Retain the Slope and Length of the Current Demand Curves Was Reasonable and Consistent with Services Tariff Requirements

The November Filing proposed no modifications to the existing Demand Curve slopes or zero crossing points. The NYISO and the Consultant agreed that there was no "compelling reason" for change, citing the same reasons that were accepted in the Second DCR Order.[97] Load Interests protest that the slope of the NYCA Demand Curve should be steeper and that its zero crossing point should be reduced from 112 to 110 percent. They also complain that the NYISO did not study these questions to the extent that the Services Tariff allegedly demands.[98]

As the November Filing explained, the Consultant's and NYISO's analyses indicated that current market conditions of excess Capacity and anticipated low load growth supported

[93] Falk Affidavit at P 8.

[94] *Id.* at PP 14-20.

[95] *Id.* at PP 21-31.

[96] *Id.* at PP 32-27.

[97] *See* November Filing at 21.

[98] *See, e.g.,* NYTOs at 11-15.

retaining the current Demand Curve slope and zero crossing points.[99] The consequences of adjusting the slope of the curves would be unpredictable but could be expected to include lower Capacity compensation, greater perceived risk by investors, significant increases to the levelized costs of entry, and the introduction of new market power issues. Contrary to what the Load Interests claim, the NYISO's position does not represent a permanent refusal to consider adjustments that would lower Capacity revenues. The NYISO has no objection to proposing such changes when they are warranted. In this instance, however, the NYISO and its Consultant reached the conclusion that changes were not justified, and could even be harmful. The Services Tariff requires only that a periodic assessment and review of ICAP Demand Curve shapes, slopes, and zero crossing points be undertaken. The NYISO has conducted such an assessment and review.

The extent of the NYISO's future reviews of the slope and length of the ICAP Demand Curves will likewise be driven by its assessment of whether prevailing economic conditions necessitate changes and that analysis will be the subject of the next Demand Curve reset proceeding.

J. The November Filing's Proposed Escalation Factor Was Reasonable

The November Filing proposed to use several inflation forecasts instead of the historic Handy-Whitman Index to determine a proposed ICAP Demand Curve escalation rate. Generator Interests argue that the NYISO should have continued to use the Handy-Whitman Index because: (i) the Commission has approved its use in the PJM Interconnection ("PJM") and ISO New

[99] In the 2007 Demand Curve Reset, the Commission found that the analysis conducted by the NYISO did adequately examine the effects of alternative zero-crossing points, because the methodology "recognizes the interdependence of the assumptions determining the reference and zero-crossing points and the slope of the demand curves" … so "[w]ith a given reference point, evaluating different demand curve slopes is equivalent to considering zero-crossing points." *New York Independent System Operator, Inc.*, 122 FERC ¶61,064 at P 62 (2008) (rejecting contentions that the NYISO did not adequately analyze slope and zero-crossing point adjustments).

England, Inc. ("ISO-NE") Capacity markets; (ii) the NYISO supported the use of the HandyWhitman Index and the Commission approved it in the Second DCR Order; and (iii) using the Handy-Whitman Index would ostensibly result in a more accurate assessment of the rate at which gas turbine generator costs will escalate.[100] None of these objections have any merit and the Commission should accept the November Filing's proposal.

The Commission's determinations with respect to PJM and ISO-NE should not be binding here. The Commission has never required that the three system operators adopt identical Capacity market structures.[101] Each uses different demand curves that are based on different sets of complex and interrelated assumptions.[102] The Commission has specifically held that setting demand curve escalation factors is essentially a matter of judgment, which also militates against the protestors' notion that the Handy-Whitman Index is the only possible "correct" basis for setting them. In addition, PJM proposed to use the Handy-Whitman Index nearly two years ago, closer in time to the NYISO's November 30, 2007 ICAP Demand Curve reset filing than the pending proposal. As the November Filing explained, economic circumstances and the likelihood of carbon emissions regulation have changed materially since then. The very purpose of the reset process is to ensure that these kinds of changed circumstances are reflected in updated ICAP Demand Curves.[103]

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[100] *See, e.g.*, In-City Incumbent Generators at 54-56.

[101] *See also Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, FERC Stats & Regs. ¶ 31,281 at PP 59 (2008), *order on reh'g*, Order No. 719-A, 74 Fed. Reg. 37,776 (Jul. 29, 2009), FERC Stats & Regs. ¶ 31,292 (2009), *order on reh'g*, Order No. 719-B, 129 FERC ¶ 61,252 (2009) (following the Commission's established policy of allowing different ISOs/RTOs to have market designs that best suit their regional circumstances by declining to develop standardized requirements for demand response resources, instead allowing "each RTO and ISO, in conjunction with its stakeholders, to develop its own minimum requirements").

[102] *See* In-City Incumbent Generators, Levitan Affidavit at P 73.

[103] *See New York Independent System Operator, Inc.,* 103 FERC ¶61,201 at P 61 (2003), *reh'g denied*, 105 FERC ¶61,108 (2003) (accepting the three-year reset process, finding that it is "reasonable to

The November Filing's proposal to use general inflation forecasts[104] is consistent with the criteria that the Commission's PJM Capacity market orders actually employed to evaluate the reasonableness of using the Handy-Whitman Index. In all cases, the objective is to develop a forecast of equipment escalation, using historical data to inform the decision but ultimately relying on future expectations for equipment and installation costs. The NYISO's approach "supplies a known and unbiased adjustment factor to change CONE values in years that are not subject to a full review..... " It "is supported by a wide range of [NYISO] stakeholders . . . ," as evidenced by the support of Load Interests in this proceeding. It allows CONE values "to be determined based upon a known and unbiased formula," so that market participants will have a higher degree of certainty regarding forecasted CONE values.[105]

The Meehan and Ungate Affidavits further demonstrate that it was reasonable and in no way inconsistent with the NYISO's position in the prior ICAP Demand Curve reset for the NYISO to propose to use general inflation forecasts to establish the escalation factor for Capacity Years 2011-2014. Mr. Meehan explains that it was appropriate for the NYISO to look to the Handy-Whitman Index in late 2007, a time of instability in combustion turbine equipment costs when it was reasonable to expect continued near term increases in those costs.[106] Hindsight has demonstrated that the 2007 proposal was correct given the circumstances that existed then. The Ungate Affidavit explains that circumstances today are different, that there is not an upward

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expect that the [Demand Curve] parameters may need adjustment over time" and "the amount of uncertainty caused by any potential adjustment" that "reflected stakeholder input and independence" is outweighed by "employing a demand curve based on irrelevant or outdated parameters.").

[104] In the first triennial review process the Commission approved the NYISO's proposed escalation factor, which was derived based on the general inflation rate at the time. *See New York Independent System Operator, Inc.*, 111 FERC ¶ 61,117 (2005) and *New York Independent System Operator, Inc.*, Tariff Revisions To Implement Revised ICAP Demand Curves - Attachment IV at 6 (filed January 7, 2005).

[105] *See PJM Interconnection, L.L.C.*, 129 FERC ¶ 61,090 at P 38 (2009). [106]

Meehan Affidavit at P 16.

trend in combustion turbine equipment prices, and that it is reasonable at this time to anticipate stability in combustion turbine equipment prices.[107] Both the Meehan and Ungate Affidavits confirm that the November Filing's escalation factor proposal, including its revision to the Consultant's recommendations on the subject, were reasonable.[108] Finally, the Meehan Affidavit explains the close relationship between the relatively short term escalation assumptions used to adjust the ICAP Demand Curves, which is at issue in this proceeding, and the longer term escalation assumptions used to define the economic carrying charge. As supported by the conclusion of Mr. Meehan, if the Commission were to require the NYISO to use the Handy-Whitman Index it would be necessary to adjust the economic carrying charge in a manner that would likely result in lowering the proposed ICAP Demand Curves.

K. The November Filing's Proposed Winter/Summer Capacity Sales Ratios Were Reasonable

The Commission should reject the Load Interests' proposal to increase the NYISO's proposed winter-to-summer Capacity sales ratios.[109] The ratios that were proposed in the November Filing were determined using "available Capacity," *i.e.,* the amount that the NYISO concluded could be offered into the ICAP Spot Market Auctions, in accordance with the requirements of the Services Tariff.[110] The NYTOs' proposal would instead calculate the adjustment based upon the levels of Capacity actually sold over a certain period. The NYISO and the Consultant have previously considered this approach and concluded that it was

[107] Ungate Affidavit at P 27-30**.**

[108] Meehan Affidavit at P 17, Ungate Affidavit at P 30. [109]

See NYTOs at 15-17.

[110] November Filing at 22-23.

inconsistent with the Services Tariff, as it reflects only Capacity that was actually offered in an auction and thus would understate the amount of available Capacity.[111]

L. Other Issues

1. There Is No Need for the Commission to Mandate a "Comprehensive Review" of the NYISO's Capacity Market Design

The NYTOs suggest that there should be a "fundamental reassessment" of the ICAP Demand Curve reset process that would encompass a variety of foundational Capacity market issues. They ask the Commission to require the NYISO to file a report addressing these issues within one year of the issuance of an order on the November Filing.[112] The NYTOs also indicate that the Commission should not take up the recent compliance filing to establish criteria governing the creation of new Capacity zones in isolation from the core Capacity market design issues that they have identified.[113]

There is no need for the Commission to mandate that the NYISO consider these issues because the NYISO is already open to discussing them with stakeholders. In particular, the NYISO has already committed to explore the possible use of a Demand Side Resource as the Demand Curve peaking "unit" in the next ICAP Demand Curve reset process.[114] Moreover, the issues that the NYTOs raise are outside the scope of this proceeding, since they have nothing to do with the ICAP Demand Curve reset proposed by the November Filing. Finally, it would not

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[111] The Commission has previously found that the NYISO's interpretation of "available Capacity" is consistent with the tariff. *New York Independent System Operator, Inc.*, 122 FERC ¶61,064 at PP 64-66 (2008) (rejecting contentions that available Capacity should be based on Capacity expected to be cleared in the market, not Capacity that can be offered).

[112] NYTOs at 25-27.

[113] *Id.* at 27.

[114] *See* November Filing at 6*, citing*, NYISO Report at 6.

be appropriate to tie action on new Capacity zones to a re-examination of core Capacity market design questions that are beyond the scope of that proceeding.

2. Accepting the Demand Curves Subject to a Refund Condition Would Create Harmful Market Uncertainty

The NYISO's 2011/2012 Capability Year will begin on May 1, 2011. In the months leading up to that date the NYISO and Market Participants will be making a number of preparations that would be greatly complicated if the revised ICAP Demand Curves are not known with certainty. Most notably, the first-come, first-serve requests for import rights are scheduled for February 17, 2011, enrollment for new Special Case Resources begins on March 16, 2011, and the 2011 Summer Capability Period Auction offer period commences on March 28, 2011.

All of the parties in this proceeding appear to recognize the importance of having clearly defined ICAP Demand Curves in place in time for these preparations to be completed. No party, regardless of the extent of its disagreement with the November Filing, has suggested that the Commission ought to set any issue for a traditional administrative hearing. To the extent that protestors seek to modify the November Filing's proposals they generally request that the Commission impose specific modifications. The only exception is the In-City Incumbent Generators, who ask, in the event that their suggested changes are not summarily imposed, that the Commission "institute expedited paper hearing procedures" and consider allowing the ICAP Demand Curves "to take effect, subject to refund, pending the outcome of the paper hearing."[115]

The NYISO respectfully requests that the Commission not, under any circumstances, make any element of the ICAP Demand Curve effective subject to refund based on the outcome of a paper hearing or on any other contingency. The Commission has correctly recognized that

[115] *See* In-City Incumbent Generators at 5.

the stability and certainty of the ICAP Demand Curves is of paramount importance.[116] IPPNY, whose members include the In-City Incumbent Generators, has made a similar point in its protest, which contends that even changes from one triennial review to the next should be avoided if they would upset Market Participant expectations.[117] Market Participants must make important business decisions that depend upon the timely establishment of ICAP Demand Curves that are not subject to revision. Leaving the final level of the 2011/2012, 2012/2013, and 2013/2014 ICAP Demand Curves unsettled, potentially for an extended period of time, would interfere with those decisions and introduce harmful market uncertainty.

[116] *See, e.g., Independent Power Producers of New York, et. al v. New York Independent System Operator, Inc.,* 125 FERC ¶61,311 at P 35 (2008) (stating that "the ICAP Demand Curve process is based on the premise that price stability and certainty are important to the market." when declining to order an out of cycle adjustment); *New York Independent System Operator, Inc*., 112 FERC ¶61,283 at P 39 (2005) (stating that "the entire ICAP Demand Curve process is based on the premise that it is important to the market to have price stability and certainty" noting that "[s]tability and certainty would be sacrificed" if refunds were ordered, when declining to order an out of cycle adjustment).

[117] The NYISO does not agree that the need for certainty dictates that changes during the triennial resets must be avoided. Such an assumption would be contrary to the very purpose of the resets which is to ensure that the ICAP Demand Curves are consistent with changing circumstances. It is clear, however, that Generator Interests cannot reasonably argue for a refund condition at the same time that they are arguing that certainty is crucial to Market Participants.

III. CONCLUSION

For the reasons set forth above, the Commission should grant the NYISO leave to answer, reject the protests, and accept the tariff revisions proposed in the November Filing without requiring any modifications and without imposing any hearing or refund conditions.

Respectfully Submitted,

/s/Ted J. Murphy
Ted J. Murphy
Counsel to the
New York Independent System Operator, Inc.

January 6, 2011

cc: Michael A. Bardee
Gregory Berson
Connie Caldwell
Anna Cochrane
Jignasa Gadani
Lance Hinrichs
Jeffrey Honeycutt
Michael Mc Laughlin
Kathleen E. Nieman
Daniel Nowak
Rachel Spiker

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, DC, this 6th day of January, 2011.

/s/ Ted J. Murphy

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1900 K Street, NW
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ATTACHMENT 1

NERA
Economic Consulting

Eugene T. Meehan
Senior Vice President

National Economic Research Associates, Inc.
1255 23rd Street NW
Washington, DC 20037

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc. Docket No. ER11-2224-000

AFFIDAVIT OF
EUGENE T. MEEHAN

Mr. Eugene T. Meehan declares:

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

I. Purpose of this Affidavit

2. The purpose of my affidavit is to respond to assertions made by the Independent Power Producers of New York ("IPPNY") that NERA Economic Consulting ("NERA") inexplicably abandoned its method of basing the escalation factor for the Installed Capacity ("ICAP") Demand Curve on the Handy-Whitman Index in favor of the general inflation rate (*see* page 49 of the IPPNY Motion to Intervene and Protest) and the statement by the Astoria Generating Company, the NRG Companies, and TC Ravenswood (collectively referred to herein as the "In-City Incumbent Generators") that the New York

Independent System Operator ("NYISO") ignored NERA's recommendation to adopt an escalation rate of 2.4%.[1]

II. Qualifications

3. I am a Senior Vice President with NERA and directed NERA's work for NYISO in connection with the ICAP Demand Curve[2] reset. A full statement of my qualifications is provided in the affidavit that I prepared that was filed by NYISO as Exhibit A to Attachment 2 in this Docket on November 30, 2010.

III. Uses of the Escalation Rate

4. The escalation rate for generation equipment is used in two aspects of setting the ICAP Demand Curves. First, the escalation rate is used to adjust the ICAP Demand Curves in 2011 dollars that apply to the first year of the reset period, in this case the 2011/2012 period, to 2012 dollars that will apply in the second year to which the reset is applicable, and to 2013 dollars that will apply in the third year to which the reset is applicable. Second, the escalation rate for generation equipment is used over the life of the equipment to determine the economic carrying charge. The first use is obvious and applies to just the first three years. The second use may be less obvious and I explain it detail.

5. The economic carrying charge is often simply referred to as a real carrying charge and is described as representing the first year's value of a stream of payments that rises at the rate of inflation and provides for the required internal rate of return on the investment. The methodology used in the ICAP Demand Curve reset to amortize investment is based

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[1] *See* Protest of the NYC Suppliers ("In-City Incumbent Generators' Protest") at 53.

[2] Terms with initial capitalization herein shall have the meaning set forth in the NYISO's Market Administration and Control Area Resources Services Tariff ("Services Tariff").

on an economic carrying charge and hence implicitly assumes that the ICAP Demand Curve will continue to escalate over time as the cost of equipment escalates. This continual increase in the ICAP Demand Curve reduces the amount of revenue required in the early years of the investment's life.

6. The rationale underlying the economic carrying charge is that, over time, new entry will set price levels, investors will anticipate those price level changes and investors will be forced by competition to set first year prices recognizing that a portion of return will come from future price escalation. As a simple example, in a rising real estate market the price of renting would be less than the annual cash cost of owning based on a traditional levelized mortgage because real estate investors would anticipate returns in the form of rising rents or capital gains over time. First year rents would not need to cover all first year cash costs.

7. The description of the economic carrying charge in Paragraph 5, above, is a simplification. The economic theory underlying the economic carrying charge does not specify the use of a general inflation rate but specifies the use of a technology-specific rate of inflation less technical progress. This theory is explained in a NERA report, "How to Quantify Marginal Costs", produced as part of the Electric Utility Rate Design Study sponsored by the Electric Power Research Institute, Inc. and various investor-owned utilities and public power trade organizations.[3] This economic theory is sensible if an investor is predicating pricing decisions based on future price increases resulting from increases in the cost of entry; the rate of escalation that is relevant is the escalation of the specific technology that will be used by future entrants.

[3] *See* "How to Quantify Marginal Costs: Topic 4", dated March 10, 1977 at pp. 111 – 12.

IV. NERA Recommendations on the Escalation Rate

8. The economic carrying charge used in the NERA and Sargent & Lundy Demand Curve reset report[4] ("NERA/S&L Report") reflects a long term inflation rate of 2.4 percent and a technical progress rate of 0.25 percent, for an escalation rate net of technical progress of 2.15 percent. All values are per annum. The 2.4 percent inflation rate is built into the economic carrying charge while the technical progress rate is reflected in the model used to develop the ICAP Demand Curves.

9. The 2.4 percent reflects the long term (2010 to 2019) headline Consumer Price Index ("CPI") inflation rate forecast from the May 14, 2010 Survey of Professional Forecasters published by the Federal Reserve Bank of Philadelphia ("Federal Reserve Bank Survey"). As explained in the NERA/S&L Report, the rate of technical progress was developed viewing the U.S. Department of Energy estimate of the learning effect for combustion turbines:[5] The higher the rate of escalation net of technical progress, the lower the economic carrying charge and hence the lower the ICAP Demand Curve. A higher escalation rate means that revenues escalate more rapidly over time and future cash flows will increase by a greater magnitude, reducing the revenues needed in the early years to achieve the target rate of return. The Federal Reserve Bank Survey used by NERA indicated a 2.40 percent inflation rate over the 2010 to 2019 period, but a slightly lower inflation rate in the first several years.

10. I elected to use the 2.40 percent inflation rate to arrive at the 2.15 percent escalation rate net of technical progress for several reasons. First, the economic carrying charge

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[4] *See* November 30 Filing at Attachment 2, "Independent Study to Establish Parameters of the ICAP Demand Curve for the New York Independent System Operator," September 3, 2010 (revised September 7, 2010), prepared by NERA Economic Consulting; also available at http://www.nyiso.com/public/webdocs/committees/bic_icapwg/meeting_materials/2010-09-16/Demand_Curve_Study_Report_9-3-10_clean.pdf.

[5] NERA/S&L Report at p. 71.

methodology employs a long term forecast of escalation and I have no reason to believe that over time the price of generating equipment will escalate more or less rapidly than general inflation adjusted for the rate of technical progress for the ICAP Demand Curve peaking units. Second, the Federal Reserve Bank Survey was published in May 2010 and hence was reasonably contemporaneous with the cost of debt and equity estimates which are based on bond yields from April 2010. Because bond yields are influenced by inflationary expectations, it is desirable that the inflation forecast and the bond yields be as contemporaneous as practicable. Third, the survey represents the view of professional forecasters and there is no reason to believe it would be biased.

11. NERA's recommendations with respect to the escalation rate focused on the long term and were developed primarily for the second use of the escalation rate described above, that is, the use of the escalation rate to develop the economic carrying charge.

12. NERA did not explicitly or separately examine the generating equipment escalation rate that could be expected to apply over the short term. While over the long term I would have no reason to believe that generating equipment prices would rise by more or less than general inflation (except for the impact of technical progress), the same does not necessarily apply to the short term. Over the short term, a market can be loose or tight and the commodity prices to which it is sensitive may trend up or down. Thus, in the short term it may be reasonable to assume that factors other than general inflation and technical progress will impact prices, or it may not. Whether it is reasonable depends upon the particular facts. Absent facts that indicate a trend different than general inflation, it is my opinion that the best assumption would be to assume general inflation will apply to the price of a particular type of technology.

13. In the 2007 ICAP Demand Curve reset, the NYISO employed in developing its escalation rate the Handy-Whitman Index for combustion turbine generators. It is my understanding that the NYISO used the Handy-Whitman Index as the forecast escalation rate because at

the time of the 2007 reset both commodity and equipment prices were rising rapidly. In order to reflect this trend, the NYISO applied an escalation rate based on a linear trend in the then recent historic Handy-Whitman Index applicable on a national basis. As explained by Mr. Lawrence in his November 2007 affidavit filed in the 2007 ICAP Demand Curve reset proceeding, recent data were applied given "the fundamental changes in equipment and raw materials costs over the last few years."[6]

14. In the instant ICAP Demand Curve reset, the NYISO applied, for the purposes of adjusting the ICAP Demand Curves from 2011 dollars to 2012 and 2013 dollars, respectively, an escalation rate of 1.7 percent based on short term general inflation forecasts of independent and respected forecasting sources. Those sources are the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters, the U.S. Office of Management and Budget, and the U.S. Congressional Budget Office.

15. The NYISO's use of the forecast general inflation rates of these independent forecasting sources, as opposed to the historic Handy-Whitman Index, is consistent with the fact that there does not appear at the current time to be a short term trend of rising commodity or equipment prices. The affidavit of Mr. Ungate of S&L indicates that combustion turbine equipment prices are stable.[7]

16. In my opinion, NYISO made reasonable decisions with respect to escalation both in 2007 and in the instant reset. Witnessing instability and rising equipment prices in 2007, the NYISO used a recent index that reflected the specific trend in combustion turbine equipment prices at the time of the 2007 reset analysis. That trend was the then short term

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[6] *See New York Independent System Operator, Inc.*, Tariff Revisions to Implement ICAP Demand Curves for 2008/2009, 2009/2010, and 2010/2011, Docket No. ER08-283-000, Attachment 6 at pp. 6-9.

[7] *See* Affidavit of Christopher Ungate, Section VI, P 24-30, Attachment to the NYISO's January 5, 2011 filing in this docket ("Ungate Affidavit").

historic change in the Handy-Whitman Index for combustion turbine generation equipment. There are no publicly available forecasts of generating equipment prices from independent forecasting experts as there are for general inflation.

17. In the instant reset, not witnessing current pressure on equipment costs, the NYISO applied a forecast of general inflation. The Handy-Whitman Index has the virtue of being specific to the equipment and the vice of being a reflection of recent history and not a forecast. The general inflation forecast has the vice of not being specific to the equipment and the virtue not of being a reflection of recent history but a forecast. It is reasonable to use the former when there is evidence of current trends and instability in the equipment market, and reasonable to use the latter when the equipment market is currently stable. This is what NYISO has done. I believe that the NYISO's escalation rate is appropriate given the market conditions described in the Ungate Affidavit and, as explained below, is consistent with long term inflation assumptions used to develop the economic carrying charges.

18. It is also desirable that the assumed rate of escalation used to apply to adjust the ICAP Demand Curves over the three year rest period be consistent with the rate of escalation used to develop the economic carrying charges used in the reset. This is the case. The NYISO has used 1.7 percent over the three year reset period. This is reasonably consistent with the long term escalation rate net of technical progress that is used in the NERA report of 2.15 percent. The NYISO's formulation is more appropriate when one considers that the early year components of the inflation forecast that NERA used are slightly lower than the long term rate. While the assumptions do not exactly match, substituting the NYISO assumption of 1.7 percent for the reset period in place of the continuous long term assumption of 2.15 percent would have a minimal impact on the carrying charge and the ICAP Demand Curve.

19. While it is my view that NYISO's use of the general inflation rate to adjust the ICAP Demand Curves over the reset period for the period under review in this proceeding is appropriate and reasonably consistent with the escalation assumption used to develop economic carrying charges in the NERA/S&L Report, should the Commission disagree and direct a Handy-Whitman-based value on the magnitude of 7.8 percent (as proposed by IPPNY and the In-City Incumbent Generators) be used to adjust the ICAP Demand Curves over the reset period, I believe it would be necessary to adjust the economic carrying charges. Such an adjustment would, all else equal, lower the carrying charges and the ICAP Demand Curves. While it is typical to calculate economic carrying charges using a single long term escalation rate net of technical progress, it quite feasible to calculate economic carrying charges that reflect differential escalation rates over time and NERA could develop economic carrying charge rates that reflected the higher escalation rates for the three year reset period or a period somewhat longer than reset period but shorter than the life of the equipment.

V. Conclusion

20. In consideration of the foregoing, I conclude as follows:

- There are two applications of the escalation rate – one to adjust the ICAP Demand Curves over the reset period and one to develop the economic carrying charge;
- The escalation rate used in both applications should be consistent, but may differ as it is customary to use a single long term rate in developing economic carrying charges and such a rate may not reflect short term market trends that may be reflected to adjust ICAP Demand Curves over the reset period;
- The NYISO has used a general inflation rate of 1.7 percent to adjust the ICAP Demand Curves over the reset period;
- In light of Mr. Ungate's affidavit that prices in the equipment market are stable and there are no current instabilities or upward trends in the

market, it is my opinion that the NYISO's use of general inflation to adjust the ICAP Demand Curves over the reset period under review in this proceeding is appropriate;

- The NYISO assumption of 1.7 percent escalation is reasonably consistent with the long term assumptions that are reflected in the NERA report and any iteration to achieve complete consistency would have a minimal impact (substituting 1.7 percent over the reset period for 2.15 percent would increase the carrying charge for the areas other than NYC from 9.54 percent to 9.67 percent);

- Should the Commission not accept NYISO's escalation assumption and use a higher escalation assumption on the order of the 7.8 percent proposed by IPPNY and the In-City Incumbent Generators, it would be necessary to revise the carrying charges used in the NERA report and the adjustment would, all else equal, lead to a lower carrying charge and lower ICAP Demand Curves. The carrying charge rate, assuming escalation over the reset period of 7.8 percent and 2.15 percent thereafter, would drop from 9.54 percent for the areas other than NYC to 8.69 percent.

This concludes my affidavit.

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information and belief.

Eugene Thomas Meehan

Eugene T. Meehan

Subscribed and sworn to before me this 4th day of January, 2011.

Notary Public

Rosalind Brown
Notary Public, District of Columbia
My Commission Expires 12/14/2014

My commission expires: _____

NOTARY PUBLIC DISTRICT OF COLUMBIA

Advised Central Maine Power Company (CMP) on the development of a competitive bidding framework. This framework was implemented in 1984 and was the first of its kind in the nation. CMP adopted the framework outlined in EMA's report and won prompt regulatory approval.

Advised a utility in the development of an incentive ratemaking plan for a new nuclear facility. This assignment involved strategic analysis of alternate proposals and quantification of the financial impact of various ratemaking alternatives. Presented strategic and financial results in order to convince senior management to initiate negotiations for the incentive plan.

Advised and testified on behalf of the New York Power Pool utilities on the methodology for measuring pool marginal capacity costs. This work included development of the methodology and implementation of the system for quantifying LOLP-based marginal capacity costs.

Provided testimony on behalf of the investor-owned electric utilities in New York State, concerning the proper methodology to use when analyzing the cost-effectiveness of conservation programs. This methodology was adopted by the Commission and used as the basis for DSM evaluation in New York from 1982 through 1988.

Developed the functional design of a retail access settlement system and business processes for a major PJM combination utility. This design is being used to construct a software system and develop business procedures that will be used for retail settlements beginning January 1999.

Reviewed the power pool operating and interchange accounting procedure of the New York Power Pool, the Pennsylvania, New Jersey, Maryland Interconnection, Allegheny Power System, Southern Company, and the New England Power Pool as part of various consulting assignments and in connection with the development of production simulation software.

Summarized and analyzed the operational NEPOOL to examine the feasibility of incorporating NEPOOL interchange impacts with Central Maine and accounting procedure of the New England Power Pool Power Company's buy-back tariffs.

Developed and presented a two-day seminar delivered to electric industry participants in the UK (prior to privatization), outlining the structure and operation of power pools and bulk power market transactions in North America.

Benchmark analysis and FERC testimony of PGE's proposed twelve-year contract between PG&E and Electric Gen LLC (contract value in excess of $15 billion).

Responsible for NERA's overall efforts in advising New Jersey's Electric Distribution Companies on the structuring and conduct of the Basic Generation Service auctions (the 2002 auction involved $3.5 billion, and the 2003 and 2004 auctions involved over $4.0 billion).

Publications, Speeches, Presentations, and Reports

Capacity Adequacy in New Zealand's Electricity Market, published in *Asian Power*, September 18, 2003

Central Resource Adequacy Markets For PJM, NY-ISO AND NE-ISO, a report written February 2004

Ex Ante or *Ex Post*? Risk, Hedging and Prudence in the Restructured Power Business, The Electricity Journal, April 2006

Distributed Resources: Incentives, a white paper prepared for Edison Electric Institute, May 2006

Restructuring Expectations and Outcomes, a presentation presented at the Saul Ewing Annual Utility Conference: The Post Rate Cap and 2007 State Regulatory Environment, Philadelphia, PA, May 21, 2007

Making a Business of Energy Efficiency: Sustainable Business Models for Utilities, prepared for Edison Electric Institute, August 2007

Restructuring at a Crossroads, presented at Empowering Consumers Through Competitive Markets: The Choice Is Yours, Sponsored by COMPETE and the Electric Power Supply Association, Washington, DC, November 5, 2007

Competitive Electricity Markets: The Benefits for Customers and the Environment, a white paper prepared for COMPETE Collation, February 2008

The Continuing Rationale for Full and Timely Recovery of Fuel Price Levels in Fuel Adjustment Clauses, The Electricity Journal, July 2008

Impact of EU Electricity Competition Directives on Nuclear Financing presented to: SMI – Financing Nuclear Power Conference, London, UK, May 20, 2009

Testimony

Forums

Arkansas Public Service Commission

Federal Energy Regulatory Commission

Florida Public Service Commission

Maine Public Utilities Commission

Minnesota Public Service Commission

Nevada Public Service Commission

New York Public Service Commission

Nuclear Regulatory Commission – Atomic Safety and Licensing Board

Oklahoma Public Service Commission

Public Service Commission of Indiana

Public Utilities Commission of Ohio

Public Utilities Commission of Nevada

Public Utilities Commission of Texas

Public Utilities Commission of New Hampshire

United States District Court

United States Senate Committee on Energy and Natural Resources

Various arbitration proceedings

Clients

Arkansas Power & Light Company

Baltimore Gas & Electric Company

Carolina Power & Light Company

Central Maine Power Company

Consolidated Edison Company of New York, Inc.

Dayton Power and Light Company

Florida Coordinating Group

Houston Lighting & Power Company

Minnesota Power and Light Company

Nevada Power Company

Niagara Mohawk Power Corporation

Northern Indiana Public Service Company

Oglethorpe Power Corporation

Pacific Gas and Electric Company

Power Authority of the State of New York

Public Service and Electric Company

Public Service Company of Oklahoma

Sierra Pacific Power Company

Southern Company Services, Inc.

Tucson Electric Power Company

Texas-New Mexico Power Company

Recent Expert Testimony and Expert Reports

Supplemental Testimony on behalf of Texas-New Mexico Power Company, Docket No. 15660, September 5, 1996.

Direct Testimony on behalf of Long Island Lighting Company before the Federal Energy Regulatory Commission, September 29, 1997.

Rebuttal Testimony on behalf of Texas-New Mexico Power Company, SOAH Docket No. 473-97-1561, PUC Docket No. 17751, March 2, 1998.

Prepared Testimony and deposition testimony on behalf of Central Maine Power Company, United Stated District Court Southern District of New York, 98-civ-8162 (JSM), March 5, 1999.

Prepared Direct Testimony Before the Public Service Commission of Maryland on behalf of Baltimore Gas & Electric Company, PSC Case Nos. 8794/8804, June 1999.

Rebuttal Testimony Before the Maryland Public Service Commission, on behalf of Baltimore Gas & Electric Company, PSC Case Nos. 8794/8804, March 22, 1999.

NORCON Power Partners LP v. Niagara Mohawk Energy Marketing, before the United States District Court, Southern District of New York, June 1999.

Prepared Supplemental Testimony Before the Maryland Public Service Commission, on behalf of Baltimore Gas & Electric Company, PSC Case Nos. 8794/8804, July 23, 1999.

Prepared Supplemental Reply Testimony Before the Maryland Public Service Commission, on behalf of Baltimore Gas & Electric Company, PSC Case Nos. 8794/8804, August 3, 1999.

Direct Testimony on behalf of Niagara Mohawk, Before the New York State Public Service Commission, PSC Case No. 99-E-0681, September 3, 1999.

Rebuttal Testimony on behalf of Niagara Mohawk, PSC Case No. 99-E-0681 Before the New York State Public Service Commission, November 10, 1999.

Arbitration deposition on behalf of Oglethorpe Power Corporation, last quarter of 1999.

Direct Testimony Before the Public Utilities Commission of Ohio on behalf of FirstEnergy Corporation, Ohio Edison Company, The Cleveland Electric Illuminating Company and The Toledo Edison Company, Case No. 99-1212-EL-ETP re: Shopping Credits.

Direct Testimony on behalf of Niagara Mohawk, Before the New York State Public Service Commission, PSC Case No. 99-E-0990, February 25, 2000.

Testimony on behalf of Consolidated Edison Company of New York, Inc., State of Connecticut, Department of Public Utility Control, Docket No.: 00-01-11, April 28, 2000 and June 30, 2000.

Testimony on behalf of Texas-New Mexico Power Company, Fuel Reconciliation Proceeding before the Texas PUC, June 30, 2000.

Testimony on behalf of Consolidated Edison Company of New York, Inc., Before the New Hampshire Public Service Commission, Docket No.: DE 00-009, June 30, 2000.

Rebuttal Testimony Before the Public Utilities Commission of the State of Colorado, Docket No. 99A-549E, November 22, 2000.

Testimony Before the Public Utilities Commission of the State of Colorado, Docket No. 99A-549E, January 19, 2001.

DETM Management, Inc. Duke Energy Services Canada Ltd., And DTMSI Management Ltd., Claimants vs. Mobil Natural Gas Inc., And Mobil Canada Products, Ltd., Respondents. American Arbitration Association Cause No. 50 T 198 00485 00, August 27, 2001.

State of New Jersey Board of Public Utilities, In the Matter of the Provision of Basic Generation Service Pursuant to the Electric Discount and Energy Competition Act of 1999, Before President Connie O. Hughes, Commissioner Carol Murphy on Behalf of the Electric Distribution Companies (Public Service Electric and Gas Company, GPU Energy, Consolidate Edison Company and Conectiv) Docket No.: EX01050303, October 4, 2001.

Direct Testimony Before the Federal Energy Regulatory Commission on behalf of Pacific Gas and Electric Company, Docket No.: ER02-456-000, November 30, 2001.

Fourth Branch Associates/Mechanicville vs. Niagara Mohawk Power Corporation, January 2002 (Expert Report).

Arbitration Deposition on behalf of Oglethorpe Power Corporation, March 2002.

Direct Testimony and Deposition Testimony Before the Federal Energy Regulatory Commission on behalf of Electric Generation LLC in Response to June 12 Commission Order, Docket No.: ER02-456-000, July 16, 2002.

Rebuttal Testimony Before the Federal Energy Regulatory Commission on behalf of Electric Generation LLC in Response to June 12 Commission Order, Docket No.: ER02-456-000, August 13, 2002.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company, in the matter of the Application of Nevada Power Company to Reduce Fuel and Purchased Power Rates, PUCN Docket No. 02-11021, November 8, 2002 and subsequent Deposition Testimony.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company's Deferred Energy Case, Docket No. 03-1014, January 10, 2003.

Direct Testimony Before the Public Utility Commission Of Texas on behalf of Texas-New Mexico Power Company, Application Of Texas-New Mexico Power Company For Reconciliation Of Fuel Costs, April 1, 2003.

Rebuttal Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company, PUCN Docket No. 02-11021, April 1, 2003.

Rebuttal Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company, Docket No. 03-1014, May 5, 2003.

Testimony on behalf of Consolidated Edison Company of New York, Inc., Before the Public Service Commission of New York, Case No.: 00-E-0612, September 19, 2003.

State of New Jersey Board of Public Utilities, In the Matter of the Provision of Basic Generation Service Pursuant to the Electric Discount and Energy Competition Act of 1999, Before President Connie O. Hughes, Commissioner Carol Murphy on Behalf of the Electric Distribution Companies (Public Service Electric and Gas Company, GPU Energy, Consolidate Edison Company and Conectiv), September 2003.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company's Deferred Energy Case, November 12, 2003.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company's Deferred Energy Case, January 12, 2004.

Rebuttal Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company's Deferred Energy Case, May 28, 2004.

Direct Testimony on behalf of Texas-New Mexico Power Company, First Choice Power Inc. and Texas Generating Company LP to Finalize Stranded Cost under PURA § 39.262, January 22, 2004.

Rebuttal Testimony on behalf of Texas-New Mexico Power Company, First Choice Power Inc. and Texas Generating Company LP to Finalize Stranded Cost under PURA § 39.262, April, 2004.

State of New Jersey Board of Public Utilities, In the Matter of the Provision of Basic Generation Service Pursuant to the Electric Discount and Energy Competition Act of 1999, Before President Connie O. Hughes, Commissioner Carol Murphy on Behalf of the Electric Distribution Companies (Public Service Electric and Gas Company, GPU Energy, Consolidate Edison Company and Conectiv), September 2004.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company's Deferred Energy Case, November 9, 2004.

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company's Deferred Energy Case, January 7, 2005.

Expert Report on behalf of Oglethorpe Power Corporation, March 23, 2005.

Arbitration deposition on behalf of Oglethorpe Power Corporation, April 1, 2005.

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Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company's Application for Recovery of Costs of Achieving Final Resolution of Claims Associated with Contracts Executed During the Western Energy Crisis, December 2006.

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Direct Testimony Before The Public Utilities Commission of Colorado, In The Matter of the Application of Public Service Company of Colorado for Approval of its 2007 Colorado Resource Plan, April 2008

Answer Testimony Before the Public Utilities Commission of the State of Colorado on behalf of Trans-Elect Development Company, LLC, and The Wyoming Infrastructure Authority, Docket No. 07A-447E, April 28, 2008

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Direct Testimony Before The Public Utilities Commission Of Nevada On Behalf of Nevada Power Company D/B/A Nevada Energy, 2010 – 2029 Integrated Resource Plan, June 26, 2009

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Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company's 2009 Deferred Energy Case, February 2010

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Nevada Power Company's 2010 – 2029 Integrated Resource Plan, Docket No. 09-07003, July 2010

Direct Testimony Before the Public Utilities Commission of Nevada on behalf of Sierra Pacific Power Company's Eighth Amendment to its 2008 – 2027 Integrated Resource Plan, Docket No. 10-03____, July 2010

ATTACHMENT 2

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc. Docket No. ER11-2224-000

AFFIDAVIT OF DAVID LAWRENCE

Mr. David Lawrence declares:

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

I. Purpose of this Affidavit

2. The purpose of this Affidavit is to provide an analysis of the impacts on the ICAP[1] Demand Curves for New York City ("NYC"), Long Island ("LI") and the New York Control Area ("NYCA") if the adjustments recommended by the Independent Power Producers of New York ("IPPNY") in its protest[2] were implemented.

II. Qualifications

3. My name is David Lawrence, and I am the Manager of Auxiliary Market Products for the New York Independent System Operator, Inc. ("NYISO"). In this position I am responsible for the design and implementation of, and enhancements to, the Installed Capacity ("ICAP") product in the NYISO market, including the development of the ICAP Demand Curves and Capacity market mitigation measures, and for working with stakeholders on such matters. Prior to my current position, I was employed for 24 years by Power Technologies, Inc., where, among other positions, I served as the Director of the

[1] Terms with initial capitalization not defined herein have the meaning set forth in the NYISO's Market Administration and Control Area Services Tariff, and if not defined therein, then as defined in the NYISO's Open Access Transmission Tariff.

[2] *Motion to Intervene and Protest of Independent Power Producers of New York, Inc.* Docket No. ER11-2224-000 (December 21, 2010) ("IPPNY Protest").

Instrumentation and Energy Management Department. I received a Bachelor of Science degree in Engineering and a Master of Science degree in Electric Power Engineering from Rensselaer Polytechnic Institute in Troy, New York.

III. Background

4. In the IPPNY Protest, IPPNY requests that the Commission require the NYISO to reset the ICAP Demand Curves to reflect:[3]

   - the excess capacity risk factors recommended by NERA Economic Consulting ("NERA")
   - the inclusion System Deliverability Upgrade ("SDU") costs in the Net CONE for the Proxy Unit in the NYCA or, in the alternative, to determine the NYCA Demand Curve based on the Net CONE of a Proxy Unit located in the Lower Hudson Valley;
   - the inclusion of property taxes into the calculation of the Net CONE for the Proxy Unit in NYC;
   - the escalation of the Demand Curves for the 2012/2013 and 2013/2014 Capability Years by 7.8%; and
   - IPPNY's proposed alternative estimates of interconnection costs for the Proxy Unit in NYC.

5. IPPNY submitted its recommended modifications to the NYISO's proposed Demand Curves as a package, but does not inform the Commission of the impact of its recommendations on the Demand Curves for NYCA, NYC and LI.

IV. Analysis of the Impact of IPPNY's Recommendations on the ICAP Demand Curves

6. I used the most recent NERA model, used in the formulation of the final Demand Curves, to investigate the impact of IPPNY's five recommendations (quoted in Section III above) on the annual reference price for each ICAP Demand Curve. Characterizing the recommendations by Capacity region, the IPPNY's recommendations call for the following changes to be made:

[3] IPPNY Protest at 8.

- NYCA: Modeled the level of excess capacity for energy and capacity revenue at 1.5%,[4] with a standard deviation of 0.75%; included SDU costs of $88.50/kW[5] and used a 7.8% escalation factor for Capability Years 2012/2013 and 2013/2014.[6]

- NYC: Modeled the level of excess capacity for energy and capacity revenue at 3%,[7] with a standard deviation of 1.5%; did not model property tax abatement,[8] included System Upgrade Facility ("SUF") costs of $23.6 Million,[9] and used a 7.8% escalation factor for Capability Years 2012/2013 and 2013/2014.[10]

- LI: Modeled the level of excess capacity for Energy and Capacity revenue at 6%,[11] with a standard deviation of 3%; and used a 7.8% escalation factor for Capability Years 2012/2013 and 2013/2014.[12]

7. Table 1 of Exhibit 1 to this Affidavit compares Demand Curves for the current Capability Year of 2010-2011, NYISO recommended Demand Curves for 2011-2014, and IPPNY's proposed 2011-2014 Demand Curves. Values represent the reference price at 100% of the minimum Installed Capacity Requirement for each of the NYC, LI, and NYCA Capacity zones on a monthly basis ($/kW-mo, the form used for the ICAP-to-UCAP translation in the NYISO's ICAP auctions) and on an annual basis ($/kW-yr). Values for the NYISO recommended and IPPNY proposed ICAP Demand Curves for the 2011-2012 Capability Year were taken directly from the results of the NERA model (cells M29 and M30), with escalation factored as per the tables included in Appendix A, Demand Curve Parameters and Demand Curves, of the NYISO recommended Demand Curves. [13]

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[4] *See* IPPNY Protest, Exhibit 2, Affidavit of Mark D. Younger ("Younger Affidavit") at 9, P 30.

[5] *See* Younger Affidavit at 24, P 84.

[6] *See* IPPNY Protest at 7.

[7] *See* Younger Affidavit at 9, P 30.

[8] *See* IPPNY filing letter at 7.

[9] *See* Younger Affidavit at 25, P 89.

[10] *See* IPPNY Protest at 7.

[11] *See* Younger Affidavit at 9, P 30.

[12] *See* IPPNY Protest at 7.

[13] *See New York Independent System Operator, Inc.*, Tariff Revisions to Implement ICAP Demand Curves for 2008/2009, 2009/2010, and 2010/2011, Docket No. ER08-283-000, Exhibit DJL-1 of Attachment 3.

8. Figure 1, of Exhibit 1 of this Affidavit, plots the percentage increase in the reference prices for NYCA, NYC and LI, comparing the IPPNY proposed Demand Curves with the NYISO's recommended Demand Curves. The IPPNY recommendations (enumerated in Section III above) would raise the 2011-2014: (1) NYCA Demand Curve by between 20 and 36 percent; (2) the LI Demand Curve by between 76 and 97 percent; and (3) the NYC Demand Curve by between 87 and 111 percent..

9. The NYISO recommended ICAP Demand Curves compared to IPPNY's proposed ICAP Demand Curves are plotted in Figures 2 through 4 for NYCA, NYC and LI, respectively. Given the linear slope of the ICAP Demand Curves, the percentage increases in ICAP Demand Curves and the Market-Clearing Prices for the ICAP Spot Market Auction in each of the NYC, LI, and NYCA Capacity zones would exist at any level of excess capacity, not only at the reference point (100%).

This concludes my Affidavit.

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

David J. Lawrence

Subscribed and sworn to before me
this 5th day of January 2011

Pamela J Mead
Notary Public

PAMELA J MEAD
Notary Public, State of NY
No. 01ME5062365
Qualified in Columbia Cty
Commission Expires 6/24, 2014

My commission expires: 6/24/2014

EXHIBIT 1

Table 1 – Comparison of Current, NYISO Recommended and IPPNY Proposed Demand Curves

	NYCA		NYC		LI	
	$/kW-mo summer	$/kW-yr	$/kW-mo summer	$/kW-yr	$/kW-mo summer	$/kW-yr
2010-2011 ICAP demand curves	$ 9.90	$ 96.46	$ 15.99	$ 143.15	$ 8.69	$ 89.47
NYISO proposed, 2011-2012	8.86	89.79	16.91	157.21	6.31	66.63
NYISO proposed, 2012-2013	9.01	91.31	17.20	159.88	6.42	67.77
NYISO proposed, 2013-2014	9.17	92.86	17.49	162.60	6.52	68.92
IPPNY recomm, 2011-2012	10.70	108.43	31.70	294.76	11.08	117.02
IPPNY recomm, 2012-2013	11.54	116.88	34.18	317.75	11.94	126.15
IPPNY recomm, 2013-2014	12.44	126.00	36.84	342.53	12.87	135.99

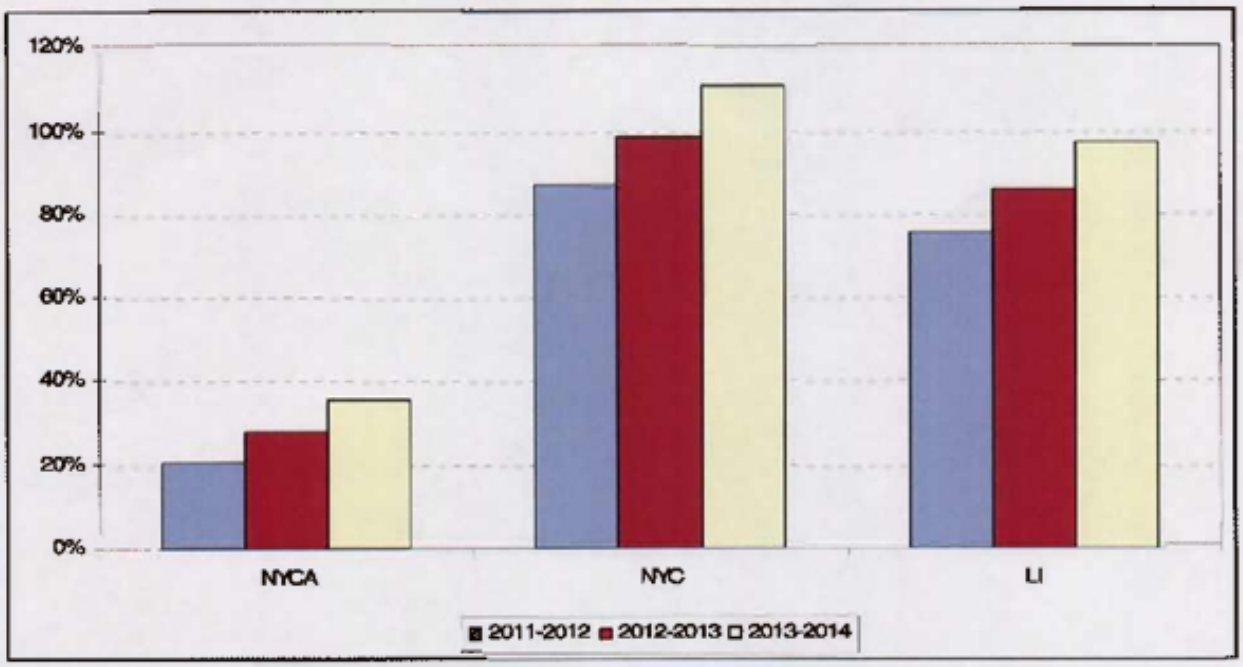

Figure 1 – Percentage Increase in Demand Curve Reference Price, IPPNY Proposed vs. NYISO Recommended Demand Curves

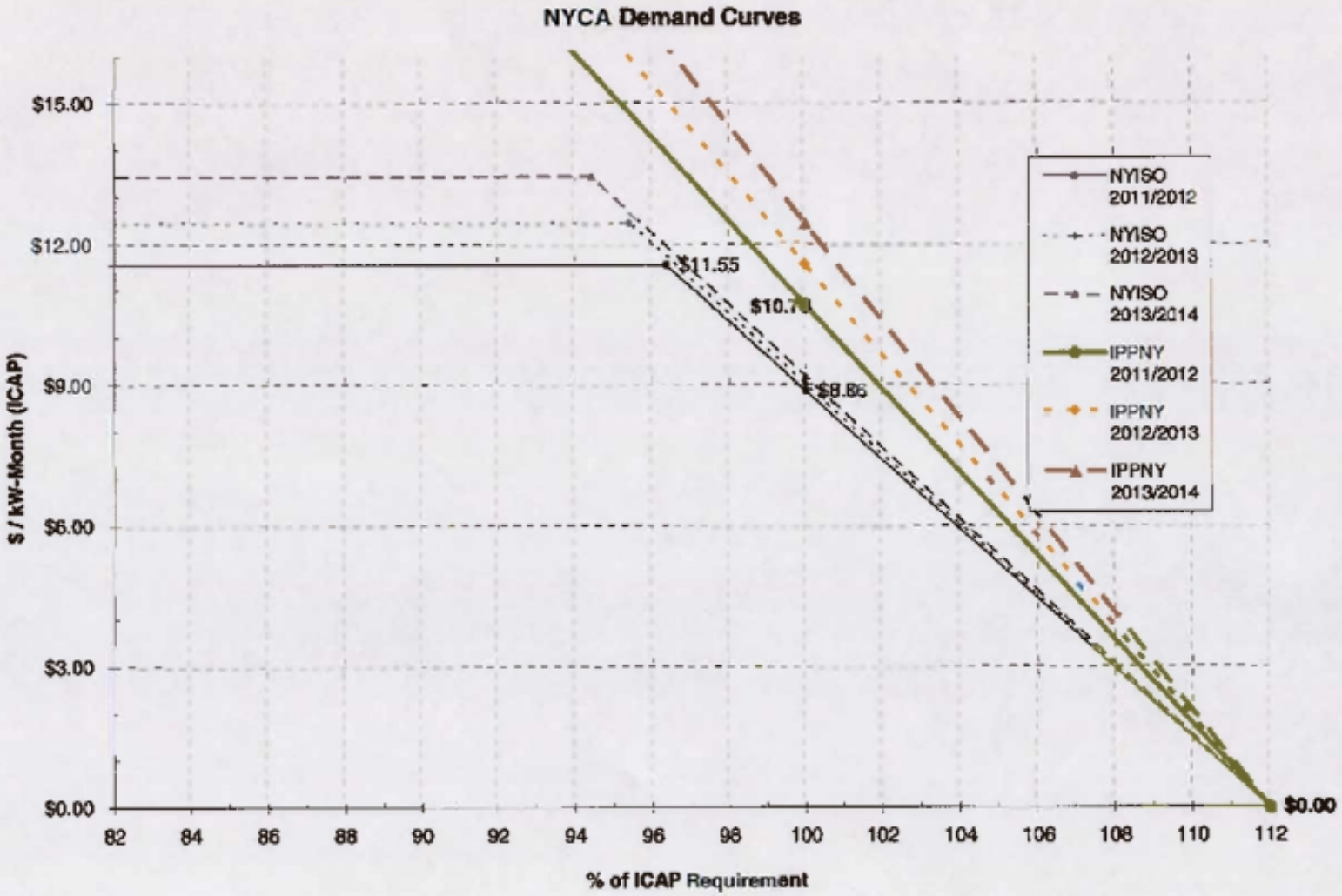

Figure 2 – NYCA Demand Curves, NYISO Recommended vs. IPPNY Proposed

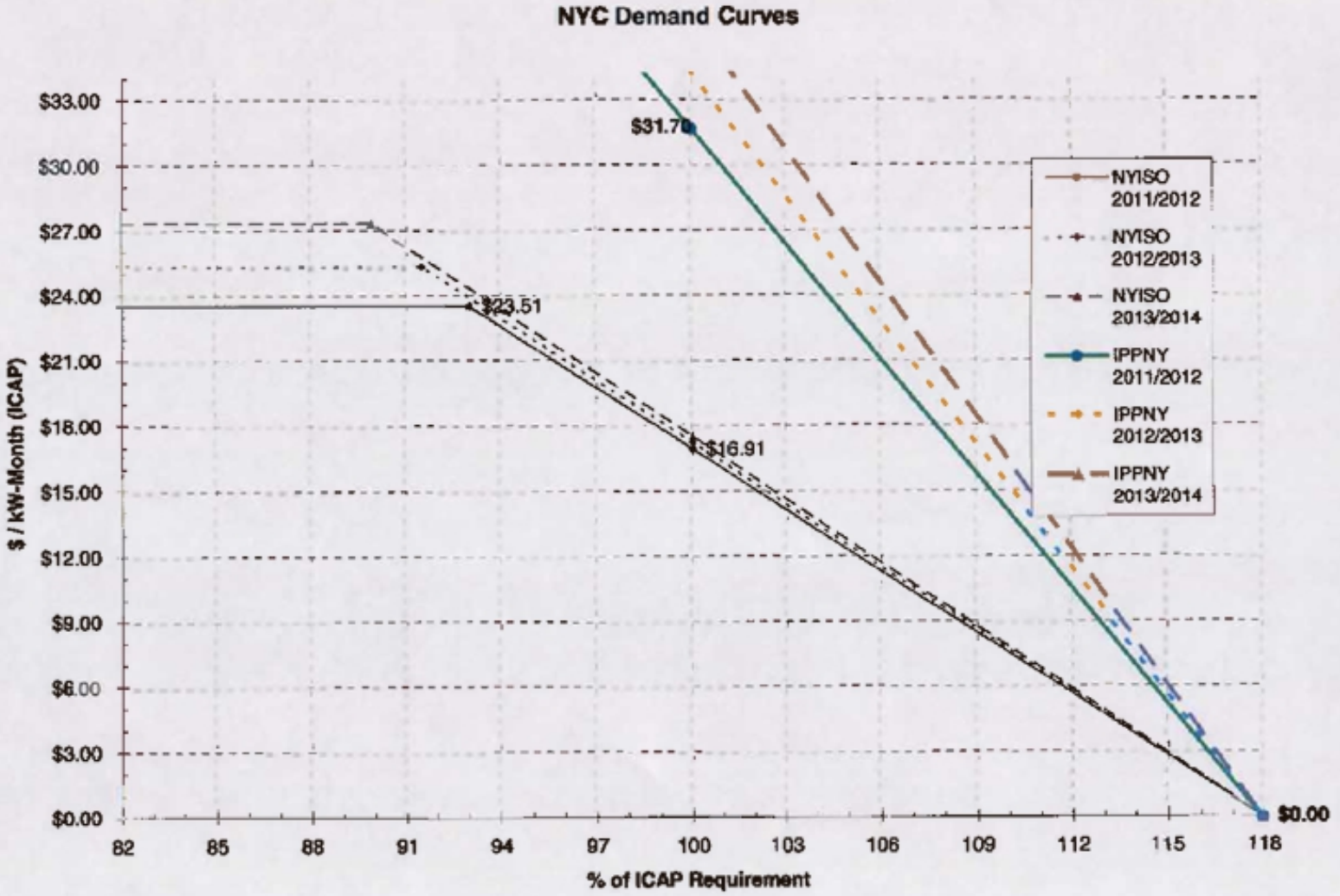

Figure 3 – NYC Demand Curves, NYISO Recommended vs. IPPNY Proposed

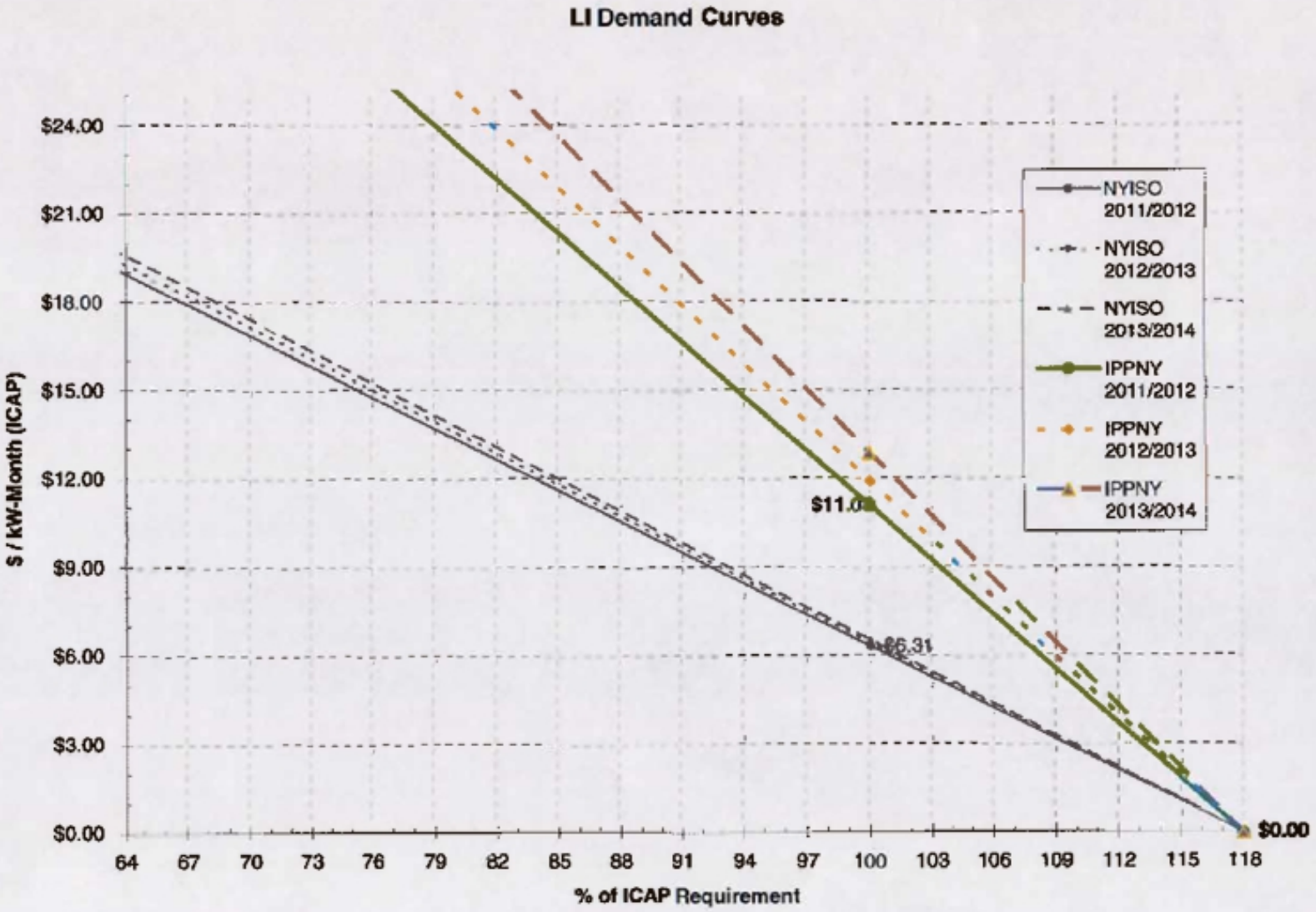

Figure 4 – LI Demand Curves, NYISO Recommended vs. IPPNY Proposed

ATTACHMENT 3

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc. Docket No. ER11-2224-000

AFFIDAVIT OF
CHRISTOPHER D. UNGATE

Mr. Christopher D. Ungate declares:

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

I. Purpose of this Affidavit

2. The purpose of my Affidavit is to discuss: a) the eligibility of the Zone J[1] peaking unit for New York City ("NYC") tax abatement under the heat rate criteria established by the NYC Industrial Development Agency ("NYCIDA"), b) how site remediation costs were factored into the costs of the Zone J peaking unit, c) the basis for estimating the interconnect costs for the Zone J peaking unit, and d) recent publicly available data supporting the proposed inflation rate for escalating the ICAP Demand Curve in future years.

II. Qualifications

3. I am a Senior Principal Management Consultant with Sargent & Lundy LLC ("Sargent & Lundy" or "S&L") and have over thirty years of experience in electric utility operations, planning, and consulting. Prior to joining Sargent & Lundy in 2006, my professional work experience included management of generation resource planning for

[1] Terms with initial capitalization not defined herein have the meaning set forth in the NYISO's Market Administration and Control Area Services Tariff, and if not defined therein, then as defined in the NYISO's Open Access Transmission Tariff ("OATT").

a 30,000 MW portfolio of nuclear, coal, hydro and gas generation, providing annual power supply plans, monthly cost forecast updates, and system reliability analyses; hydro operations business planning; re-engineering and process improvement initiatives in utility planning and operations; and laboratory and prototype testing for hydro and thermal generating plants.

4. My consulting practice at Sargent & Lundy focuses on the areas of integrated resource planning, financial modeling and analysis for the assessment of power generation technologies, project development, asset transactions, operational reviews, and facility modifications and refurbishment projects. I also perform due diligence reviews of new technology development, new projects, modification and refurbishment of existing facilities, asset transactions, and operational assessments.

5. I managed Sargent & Lundy's recent and ongoing efforts with respect to the 2007 and 2010 NYISO update processes for the NYISO ICAP Demand Curves. As part of that work, I managed the estimation of capital costs, fixed operations and maintenance costs, and other fixed costs for quantifying the cost of new entry in NYISO Zones J and K, and Rest of State ("ROS").

6. My resume is attached as Exhibit A hereto.

III. Heat Rate of Peaking Unit in Zone J

7. I reviewed the Affidavit of David Perri[2] regarding the eligibility for New York City property tax abatement of an LMS100 unit that the US Power Generating Company plans to construct in Zone J, based on the Third Amended and Restated Uniform Tax

[2] The Perri Affidavit is Attachment C to the Protest of Astoria Generating Company, the NRG Companies, and TC Ravenswood (collectively referred to herein as the "In-City Incumbent Generators") filed in this docket.

Exemption Policy ("UTEP") of the New York City Industrial Development Agency ("NYCIDA"). The LMS100 unit is proposed to be constructed as part of the South Pier Improvement Project ("SPIP"). Mr. Perri concludes that the SPIP will meet neither the UTEP subsection (aa) heat rate criterion of not exceeding "7,850 btuLHV/kWh (ISO 59, 60% RH, zero losses, sea level) as measured at the generator terminals..." nor the subsection (bb) heat rate criterion of not exceeding "8,250 btuLHV/kwh (9,150 btuHHV/kwh) as measured net of power plant parasitic loads...." Because the SPIP unit and the Zone J peaking unit are the same technology (the LMS100), Mr. Perri concludes that the Zone J peaking unit would not meet the UTEP's performance criteria and would not be eligible for tax abatement.

8. The gas turbine performance of the Zone J peaking unit is almost identical to the performance of the SPIP unit presented in the Perri affidavit. Mr. Perri uses essentially the same ambient conditions, and has very similar inlet and exhaust losses. The peaking unit and the SPIP unit use the same fuel gas. The SPIP gross heat rate at the generator of 7,906 Btu/kWh (LHV) is essentially the same as the 7,902 Btu/kWh (LHV) heat rate of the peaking unit, and the power outputs differ by only 2 kW. I concur with Mr. Perri that neither the peaking unit nor the SPIP unit will meet the 7,850 Btu/kWh (LHV) heat rate of the subsection (aa) requirement.

9. I differ with Mr. Perri regarding his second claim that the LMS100 peaking unit will not meet the net plant heat rate of 8,250 btuLHV/kwh (9,150 btuHHV/kwh) – the subsection (bb) requirement. I agree with Mr. Perri that the policy language says "zero losses", which implies that heat rates would be based on new and clean conditions. (Note that the heat rates quoted in the NERA and Sargent & Lundy ICAP Demand

Curve reset report[3] ("NERA/S&L Report") are not for new and clean conditions, but are increased by 1.3 percent to account for average heat rate degradation experienced in unit operation between overhauls). Also, Mr. Perri and I calculate the net plant heat rate in the same manner. Where we differ is in the estimate of parasitic losses for the LMS100.

10. The LMS100 base auxiliary power requirement for the Zone J peaking unit at the same ambient conditions is 1,425 kW, which is lower than Mr. Perri assumes for the SPIP. The Zone J peaking unit value is the same as used for the 2007 ICAP Demand Curve study,[4] and is in line with typical rules-of-thumb used by Sargent & Lundy for aeroderivative peaking units. The net plant heat rate for the base auxiliary power requirement is 8,895 Btu/kWh (HHV) for new and clean conditions. To be directly comparable to the SPIP calculations, I added the auxiliary power required by a gas compressor, which is estimated at 1,300 kW, and the cooling system for the LMS100 intercooler, which is estimated at 200 kW. Increasing the auxiliary power to 3 MW to account for the gas compressor and cooling for the intercooler, the heat rate increases to 9,036 Btu/kWh (HHV) for new and clean conditions. This heat rates meets the section (bb) requirement. The auxiliary power has to increase to approximately 4,240 kW before the section (bb) heat rate requirement cannot be met. Mr. Perri assumes an auxiliary power requirement for SPIP of 6 MW.

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[3] *See* Table A-2 in November 30 Filing at Attachment 2, "Independent Study to Establish Parameters of the ICAP Demand Curve for the New York Independent System Operator," September 3, 2010 (revised September 7, 2010), prepared by NERA Economic Consulting; also available at http://www.nyiso.com/public/webdocs/committees/bic_icapwg/meeting_materials/2010-09-16/Demand_Curve_Study_Report_9-3-10_clean.pdf.

[4] *See New York Independent System Operator, Inc.*, Tariff Revisions to Implement ICAP Demand Curves for 2008/2009, 2009/2010, and 2010/2011, Docket No. ER08-283-000, Attachment 4 – Exhibit B.

11. The Zone J peaking unit is based on the LMS100 technology with assumptions regarding site conditions and operating conditions. An actual unit, such as the SPIP, will differ in cost and performance to some degree, so variations – for example, variations in auxiliary power – are not unexpected.

IV. Site Remediation Costs in Zone J

12. I reviewed the Motion to Intervene, Protest, and Comments of the City of New York filed in this Docket ("City of New York Motion") regarding site remediation costs for the Zone J peaking unit. The City of New York states that "the NYISO Filing proposes a 50 percent adder to the land costs of the NYC proxy peaking unit to account for an assumption that the owner of such unit, as lessee, would accept full responsibility for all site remediation costs."[5] The City of New York Motion goes on to state that "this assumption is unreasonable and should be rejected by the Commission, together with the cost adder to the lease rate for the NYC proxy unit associated therewith."

13. Table A-11 of the NERA/S&L Report[6] shows that the Site Remediation Cost assumed for the Zone J peaking unit is $2,005,500, and is less than one percent of the $276,318,000 Total Engineering Procurement and Construction ("EPC") cost for the plant.

14. The $2,005,500 site remediation cost is included in the $6,017,000 Site Preparation cost shown for the Zone J peaking unit in Table A-3 of the NERA/S&L Report. The $2,005,500 site remediation cost amounts to a 50 percent adder to the Site Preparation cost of $4,011,000 exclusive of site remediation.

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[5] City of New York Motion at 11.

[6] NERA/S&L Report at 111-112.

15. Table II-3 of the NERA/S&L Report[7] shows that the Total Capital Investment estimated for the Zone J peaking unit is $326,206,000. If the $2,005,500 site remediation was removed from the EPC or Direct Cost, the Total Capital Investment cost would be reduced to $323,843,500. On a $/kW basis, this would reduce the Total Capital Investment cost from $1,807/kW to $1,794/kW.

16. Section II.E.1.a of the NERA/S&L Report states that "site leasing costs in Zone J were based on market data."[8] Zone J site leasing costs do not include an explicit cost adder to the lease rate for site remediation that can be removed.

V. Interconnect Costs in Zone J

17. I have reviewed the Affidavit of Mark D. Younger ("Younger Affidavit"),[9] which states that interconnect costs should be increased based on interconnection cost determinations for three of the four Class Year 2009 and 2010 Zone J projects published by NYISO on November 30, 2010, and December 2, 2010, respectively. I have been informed by the NYISO that the SUF costs in Mr. Younger's Affidavit are draft estimates and are subject to the approval of the NYISO Operating Committee, and as of the date of this Affidavit, they have not yet been approved.

18. I estimated interconnect costs in June 2010 prior to the publishing of the NERA/S&L Report on September 3, 2010, and revised on September 7, 2010. These interconnection costs include costs for System Upgrade Facilities ("SUFs"), but do not include the costs for System Deliverability Upgrades ("SDUs"). SUF costs are itemized

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[7] NERA/S&L Report at 27-28.

[8] NERA/S&L Report at 30.

[9] The Younger Affidavit is Exhibit 2 to the Motion to Intervene and Protest of Independent Power Producers of New York, Inc. filed in this docket ("IPPNY Protest").

as "Electrical Interconnect and Upgrades" in the capital cost estimates shown in Table A-3 of the NERA/S&L Report.[10] Mr. Younger correctly identifies the SUF costs for the Zone J peaking unit as $4,800,000 in his affidavit.[11]

19. The SUF costs for the Zone J peaking unit were estimated based on the average of the SUF costs for historical Zone J capacity interconnection projects. As described below, those costs were then escalated to 2010 dollars. At the time SUF costs were estimated for the NERA/S&L Report, the most recent Zone J historical precedents were three projects from Class Year 2001. The reason for applying the escalated dollar amount of the average SUF cost of the historical projects on a $/kW basis to the Zone J peaking unit for the current ICAP Demand Curve reset was that the historical projects were high capacity factor combined cycle units, not simple cycle combustion turbines; the historical projects had larger capacity in terms of MW; and the SUF cost on a $/kW basis varied significantly among the three projects, reflecting considerable variation due to site characteristics. Mr. Younger also shows considerable variation in SUF costs on a $/kW basis.

20. The SUF costs of the historical projects were escalated to 2010 dollars by applying the Producer Price Index to materials and equipment costs, and the Consumer Price Index ("CPI-U") to labor costs, assuming 70 percent of the cost is materials and equipment and 30 percent is labor.

21. The average cost of the historical projects was applied on a $/kW basis to the three technologies considered for the Zone J peaking unit: the LMS100, the LM 6000, and

[10] NERA/S&L Report at 101-102.

[11] Younger Affidavit at 24, P 85.

the Trent 60. The SUF cost for the Zone J peaking unit was estimated as the average of the SUF costs calculated for these three technologies. The reason for using the average of the SUF cost estimates of the candidate technologies is that the variation in the magnitude of the SUF cost among the three technologies was small because the size of the peaking units was similar (100-200 MW).

22. I have estimated the effect of including the three interconnection projects from Class Years 2009 and 2010 in addition to the three interconnection projects from Class Year 2001 escalated to 2010 dollars. Using the same methodology described above, the SUF cost for the Zone J peaking unit would be $8,300,000. On a $/kW basis, this would increase the Total Capital Investment cost shown in Table II-3 of the NERA/S&L Report from $1,807/kW to $1,830/kW. If only the three interconnection projects from Class Years 2009 and 2010 were used, the SUF cost for the Zone J peaking unit would be $11,200,000 using the above methodology, and the Total Capital Investment shown in Table II-3 would increase to $1,849/kW.

23. The SUF costs stated in the NERA/S&L Report and incorporated into the proposed ICAP Demand Curves are based on the approved costs of historical projects. The SUF cost data from the historical projects provides a representative basis from which to estimate the SUF costs for the peaking unit, particularly given the wide variation in SUF costs demonstrated in the data used.

VI. Data Supporting Assumed Inflation Rate

24. I have reviewed the Affidavit of Jonathan A. Lesser, Ph.D., ("Lesser Affidavit")[12] who argues that the average annual change for the Handy-Whitman index for gas turbogenerators between 2008 and 2010 of 7.8 percent should be used to make annual cost adjustments for the Net Cost of New Entry ("CONE") values.[13] Dr. Lesser states that NYISO's reason for using a general inflation index in its recommendation for the 2010 ICAP Demand Curve update conflicts with the NYISO's own position in the 2007 ICAP Demand Curve update.[14]

25. I submitted an affidavit dated November 29, 2007, providing updated cost assumptions for the LMS100 peaking unit that was the basis for NYISO's proposal at the time to use the LMS100 technology as the basis for the Zones J and K peaking unit.[15] I stated that equipment costs rose an average of 3.3 percent in the four months between May 2007 and September 2007, for an annualized equipment cost increase of 10.3 percent. Including an average year-to-year increase of 3.8 percent for labor costs, I estimated that the weighted average annual cost increase at that time was 6.35 percent. This value supported NYISO's determination in 2007 to propose an escalation rate of 7.8 percent in the 2007 ICAP Demand Curve update.

26. Recent data support the lower inflation rate of 1.7 percent proposed by NYISO for the 2010 ICAP Demand Curve update. The Gas Turbine World 2010 GTW Handbook

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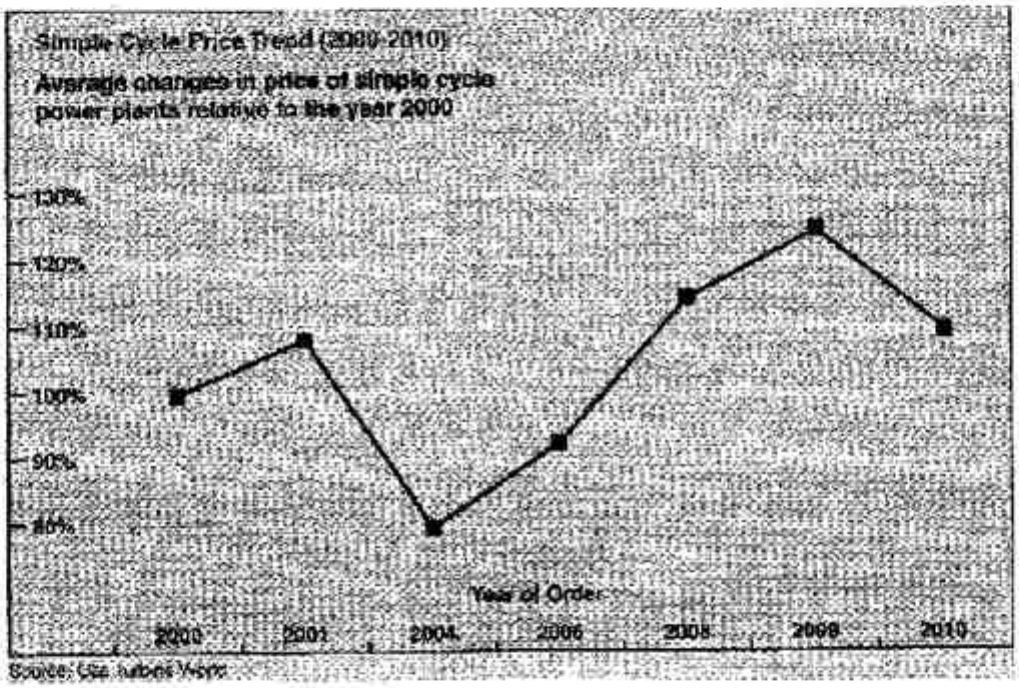
[12] The Lesser Affidavit is Exhibit 1 to the IPPNY Protest.

[13] Lesser Affidavit at 41, P 89.

[14] *Id.* at 39, P 84.

[15] *New York Independent System Operator, Inc.*, Tariff Revisions to Implement ICAP Demand Curves for 2008/2009, 2009/2010, and 2010/2011, Docket No. ER08-283-000, Attachment 5.

shows Simple Cycle Price Trends for 2000 to 2010.[16] As described by Gas Turbine World, the prices are a consensus of what project developers, owner-operators, consultants and OEM suppliers agree are reasonable for budgeting purposes. The prices quoted are equipment-only prices for a single unit package of a standard, basic pre-engineered package design. Equipment costs are approximately 40 percent of total EPC or Direct Costs, as shown in the study report.



27. The 2010 GTW Handbook shows significant equipment price increases for simple cycle combustion turbines starting in 2004 and peaking in 2009, substantiating the cost increases for those years noted in the Handy-Whitman index and as described by Dr. Lesser. The 2010 GTW Handbook notes, however, that "the latest price index figures for January 2010 indicate that shipments for the year 2009 lost most of the 15% price increase that occurred in 2008 and is likely to continue. According to our

[16] Gas Turbine World, "Gas Turbine World 2010 GTW Handbook," Perquot Publishing, Inc., Volume 28, July 2010.

research, new gas turbine orders over the next 12 months are expected to firm up and hold at about 9 to 10% lower price level compared with 2009 prices for gas turbines." The 2010 GTW Handbook goes on to state that "given these very recent market developments, Gas Turbine World has adjusted its pricing assessment, forecasting an approximate 9 to 10% overall decrease in prices for 2010. We expect to see this reflected in gas turbine shipment price levels during 2011 and 2012."

28. S&L's equipment cost estimate for each combustion turbine technology for the 2010 ICAP Demand Curve reset includes add-on options not included in the 2010 GTW Handbook budget price estimates. These add-ons are for dual fuel combustion in Zone J, and emissions control equipment for all zones that allow the candidate peaking units to operate with New York's site and environmental restrictions. We also used the latest combustion turbine models rather than the typical models whose prices form the basis for the 2010 GTW Handbook price index. The latest models offer improved performance and lower emissions which allow for siting of each technology in New York. I expect that equipment costs for the models used for the 2010 ICAP Demand Curve update have not decreased in price as shown by the 2010 GTW Handbook price trend, and also have not increased at a rate as high as the 2004 to 2009 equipment price trends or the Handy-Whitman index trends for the same period.

29. As stated previously, equipment costs are about 40 percent of the EPC or direct cost of the peaking units. The remaining 60 percent of cost is materials and labor and other costs. Most of that 60 percent is labor costs. As stated previously, I have used the Consumer Price Index as a basis for forecasting labor costs for other inputs to the 2010 ICAP Demand Curve update. The Third Quarter 2010 Survey of Professional

Forecasters published by the Federal Reserve Bank of Philadelphia shows a median CPI forecast of 2.0 percent for 2010-2014.[17] The 2011 Annual Energy Outlook published by the U.S. Energy Information Administration uses an average annual escalation rate of 1.9 percent for CPI-U over the same period.[18]

30. I conclude that the expected inflation of Total Capital Investment costs for the 2010 ICAP Demand Curve reset is significantly different and substantially lower than the expected inflation for Total Capital Investment costs for the 2007 ICAP Demand Curve update. A moderate inflation rate (1.5-2.0 percent) is best supported by the available data.

This concludes my Affidavit.

[17] Federal Reserve Bank of Philadelphia, Survey of Professional Forecasters, Third Quarter 2010, August 13, 2010. The Fourth Quarter forecast, released November 15, 2010, is unchanged for this parameter.

[18] U.S. Energy Information Administration, Annual Energy Outlook, 2011AEO, Reference Case, Table 20. Macroeconomic Indicators, December 2010.

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Christopher D. Ungate

Subscribed and sworn to before me
this 4th day of January 2011

Notary Public

William J. Haunert
My Commission Expires
June 14th, 2015

My commission expires: _____

EXHIBIT CDU-1

CHRISTOPHER D. UNGATE RESUME

CHRISTOPHER D. UNGATE
Senior Principal Management Consultant
Sargent & Lundy Consulting

EDUCATION

University of Tennessee, Master of Business Administration, 1984
Massachusetts Institute of Technology, M.S. Civil Engineering, 1974
Massachusetts Institute of Technology, B. S. Civil Engineering, 1973

REGISTRATIONS

Professional Engineer - Tennessee

EXPERTISE

Resource Planning
Business and Strategic Planning
Process Improvement and Re-engineering
Market Analysis and Price Forecasting
Decision Analysis
Asset Valuation and Due Diligence
Generation Portfolio Analysis
Risk Analysis

RESPONSIBILITIES

Mr. Ungate is accountable for Sargent & Lundy offerings in the Utility Planning business segment. He develops and evaluates integrated resource plans and associated analyses to identify and evaluate the optimum power supply options. He reviews and evaluates power supply planning and procurement options such as generation options available in the region (potential greenfield or plant expansion options), the viability of siting and permitting new nuclear, coal, gas, wind, solar, biomass or other alternative generation, the prospects for purchase of existing assets, and the potential for partnering with other load serving entities or power generators. He also assesses the potential and/or required renewable energy resource options, the state of transmission planning and upgrade programs, recent wholesale prices in the Client's load zone, and the fuel market and transportation capacities. He assures consistency with the Client's long-term plans and objectives and Client-specific economic factors (such as standard inflation, inflation, discount, or escalation rates).

Mr. Ungate develops financial models and analyses utilized in the assessment of power generation technologies, project development, asset transactions, operational reviews, and facility modifications and refurbishment projects. He bases the models on appropriate economic, project, operating, and client-specific inputs related to base-case scenarios, as well as associated sensitivity analyses. He also reviews existing financial models and analyses to determine if they are reasonable and appropriate, and to evaluate or develop resulting conclusions and recommendations. He also performs forward pricing analyses and evaluations, system reliability studies, load forecasting, and electric market forecasts and projections in support of power supply planning or other Client needs.

Mr. Ungate also performs due diligence reviews of new technology development, new projects, modifications and refurbishment of existing facilities, asset transactions, and operational assessments. He evaluates and develops plans to optimize the utilization of conventional hydropower plants and pumped storage plants with thermal generating units.

EXPERIENCE

Mr. Ungate has over 35 years of experience in engineering and planning for electric utilities. Since joining Sargent & Lundy in 2006, his assignments have included:

ALTERNATIVES ANALYSIS

- **San Miguel Electric Cooperative**
  - Conducted study of generation alternatives to meet federal and state requirements for justification of new coal project.

- **CPS Energy**
  - Developed cost and performance assumptions for alternative technologies for use in integrated resource planning studies. Compared published estimates of costs for new nuclear plants.

- **Entegra Power Services**
  - Conducted a planning study of adding 300 MW of natural gas-fired peaking capacity to an existing power station in the southwest US. Estimated capital costs, operating performance, and operations and maintenance (O&M) costs for three aeroderivative combustion turbine models with and without selective catalytic reduction (SCR), and two frame combustion turbine models without SCR.

- **South Mississippi Electric Power Association**
  - Reviewed renewable energy alternatives for this G&T cooperative in anticipation of future Renewable Portfolio Standard requirements. Directed the evaluation of responses to an RFP for renewable energy and capacity.

- **Department of Energy and Sandia Renewable Energy Laboratory**
  - Updated the 2003 report, "Assessment of Parabolic Trough and Power Tower Solar Technology Cost and Performance Forecasts" with the Dish technology.

RISK ANALYSIS

- **Various Clients**
  - Analyzing the risks associated with the cost, schedule, and performance impacts of proposed projects.

- **Globaleq**
  - Identified and quantified key drivers of increases in capital estimates for coal fired power plants.

- **American Electric Power**
  - Identified and compared key characteristics of new nuclear plant technologies. Assessed the risk of each technology relative to client objectives.

- **Allegheny Energy**
  - Developed a comprehensive risk analysis model to determine the expected outage days, generation and costs for a fleet of supercritical coal-fired units based on a high level condition assessment. The objectives were to assess the impacts of the risk issues and associated mitigation projects and to provide support the development of capital spending plans.

PLANNING AND PROJECT SUPPORT

- **PSEG**
  - Developed the need for power and energy alternatives analyses to satisfy the NUREG 1555 requirements for Environmental Reports associated with an Early Site Permit Application for a new nuclear plant project.

- **Tennessee Valley Authority, PSEG**
  - Developed the need for power analysis to satisfy the NUREG 1555 requirements for Environmental Reports associated with a Combined Operating License Application for a new nuclear plant project.

- **New York Independent System Operator**
  - Estimated the cost of new entrant peaking units used in the formulation of demand curves for capacity market. Estimated going forward costs of existing generation used in determining need for market power mitigation.

- **Eskom**
  - Surveyed major equipment suppliers with capabilities to support a large coal-fired project in Africa to assess the potential effect of current and projected production capacity, resource availability, and transportation requirements on project schedule, quality, and costs.

- **EPB**
  - Conducted seminars on selected generation, transmission and electricity market topics to prepare senior management on current trends and issues.

Prior to joining Sargent & Lundy, Mr. Ungate had over 30 years of experience at the Tennessee Valley Authority in a variety of engineering and planning assignments. Examples of assignments include the following:

POWER SUPPLY PLANNING

- Directed supply planning for 30,000 MWs of nuclear, coal, gas, renewable, and hydro generation, and determined peak season power purchase requirements. Directed the preparation of power supply plans, and the valuation of capacity additions, major projects, product offerings, and bulk power transactions. Plans provided the basis for

purchase and sale decisions; fuel purchase and inventory decisions; and hedging strategies for the commodity book.

- Led environmental controls optimization study to determine least cost approach to meeting CAIR/CAMR requirements for TVA's 15,000 MW coal generation portfolio. Alternatives included mothballing of units; increased allowance purchases; modified capital improvement programs; re-powering; and replacement with capacity and energy purchases from gas-fired units. Developed approach that resulted in reduction of projected end of period debt by more than $1 billion.
- Provided cost analysis for product pricing for industrial customers. Determined analytical approach and oversaw analyses to determine value of interruptible products, standby power, customer co-generation, long vs. short term contracts, and dispersed power products.

BUSINESS AND STRATEGIC PLANNING

- Directed business planning for portfolio of 109 conventional hydropower units at 29 sites and four pumped storage units. Portfolio supplies 10-15% of company sales with 5000 MWs of capacity. Forced outage rates, recordable injury incident rates, and reportable environmental events were increasing over the previous six years. Developed a five year business plan to increase resources to facilitate the transition to a process management maintenance strategy, and to integrate plant modernization and automation projects to change technology and workflow at the plants.
- Directed the first reassessment of the operating policies of Tennessee Valley Authority reservoirs since the system was designed in the 1930's. Stakeholders were concerned about water quality issues affecting the reservoirs and about the adverse impact of lake levels on property values and recreation-oriented businesses. Led initiative to redefine operating policies, examine environmental concerns, expand public interest and support, and more effectively meet the needs of multi-state customer base. Directed the development of an operating scheme that preserved hydropower value while improving summer lake levels for recreation and increasing minimum flows for water quality.
- Developed competitive analysis for an electric utility. Customers seeking choice of energy suppliers created need for a credible competitive analysis for electric utility monopoly. Price to customers was above competitive energy suppliers. Loss of customer load would create the risk of not recovering the high fixed costs of generation built to serve former customers. Quantified the competitive threat, and identified the circumstances under which loss of customers was most likely.

PROJECT ENGINEERING

- Directed 40-50 engineers, technicians and building trades conducting laboratory and prototype testing of thermal and hydro plant performance problems. Responsible for daily operating management, laboratory safety, quality assurance, human resources, technology acquisition and facilities management.
- Conducted field tests and physical modeling studies on the effects of thermal generating plants on rivers and reservoirs. Contributed to preparation of several environmental statements impacting authorizations for plant operations and discharge.

MEMBERSHIPS

Board of Examiners, Tennessee Quality Award, 1997-99

PUBLICATIONS

"Baseload Generation Capital Cost Trends," Electric Power Conference, May 2007.

"Resolving Conflicts in Reservoir Operations: Some Lessons Learned at the Tennessee Valley Authority," American Fisheries Society symposium, 1996.

"Tennessee Valley Authority's Clean Water Initiative: Building Partnerships for Watershed Improvement," Journal of Environmental Planning and Management, 39(1), 1996.

"'Equal Consideration' at TVA: Changing System Operations to Meet Societal Needs," Hydro Review, July 1992.

"Reviewing the Role of Hydropower in TVA Reservoir Operations," with Douglas H. Walters, Waterpower '91, An International Conference on Hydropower, Denver, Colorado, 1991.

"TVA's Lake Improvement Plan: Reviewing the Operating Objectives of TVA's Reservoir System," National Conference on Hydraulic Engineering, Nashville, Tennessee, July 1991.

"Tennessee River and Reservoir System Operation and Planning Review, Final Environmental Impact Statement," with TVA staff, December 1990.

"Field and Model Results for Multiport Diffuser Plume," with Charles W. Almquist and William R. Waldrop, American Society of Civil Engineers Specialty Conference on Verification of Mathematical and Physical Models, University of Maryland, August 1976.

"Mixing of Submerged Turbulent Jets at Low Reynolds Number," with Gerhard Jirka and Donald R. F. Harleman, M.I.T. Ralph M. Parsons Laboratory, Report No. 197, February 1975.

ATTACHMENT 4

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc. Docket No. ER11-2224-000

AFFIDAVIT OF JONATHAN FALK

Mr. Jonathan Falk declares:

1. I have personal knowledge of the facts and opinions herein and if called to testify could and would testify competently hereto.

I. Purpose of this Affidavit

2. The purpose of my affidavit is to respond to assertions made by the Astoria Generating Company, the NRG Companies, and TC Ravenswood (collectively referred to herein as the "In-City Incumbent Generators")[1] through their affiant Dr. Richard Carlson of Levitan Associates regarding the econometric analysis underlying the Energy and Ancillary Services revenue calculations of the NERA Economic Consulting ("NERA") and Sargent & Lundy Demand Curve reset report ("NERA/S&L Report"[2]).[3]

II. Qualifications

3. I am a Vice President at NERA where I have been continuously employed since 1984. In that time I have carried out numerous analyses of electric markets and numerous statistical

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[1] *See* Protest of the NYC Suppliers ("In-City Incumbent Generators' Protest") at 53.

[2] *See* November 30 Filing at Attachment 2, "Independent Study to Establish Parameters of the ICAP Demand Curve for the New York Independent System Operator," September 3, 2010 (revised September 7, 2010), prepared by NERA Economic Consulting; also available at http://www.nyiso.com/public/webdocs/committees/bic_icapwg/meeting_materials/2010-09-16/Demand_Curve_Study_Report_9-3-10_clean.pdf.

[3] In-City Incumbent Generators' Protest at Attachment B ("Carlson Affidavit").

and econometric analyses, both in electricity markets and outside them. I have testified before many tribunals and regulatory bodies, including the Federal Energy Regulatory Commission (the "Commission"). Most relevantly, I am NERA's primary researcher for the econometric analyses and simulation work relating to the estimation of Energy[4] and Ancillary Services revenues in the NYISO's ICAP market. The chapter of the NERA/S&L Report regarding this estimation was substantially my own, and I carried out similar work for the NYISO in the 2007 ICAP Demand Curve reset process. A complete copy of my *curriculum vitae* is appended as Exhibit JF-1.

III. Model Analysis

4. The Carlson Affidavit claims to have identified two supposed flaws in my analysis:

5. In Dr. Carlson's words, "[f]irst, the historical period used by NERA to estimate model parameters is too short for accurate prediction of energy LBMPs and revenues. Second, NERA apparently did not employ basic statistical diagnostic tests of possible model misspecification to ensure that its predictions are reasonably accurate."[5]

6. Dr. Carlson proposes two corrections for these supposed "flaws": the use of a longer time period for estimation and the use of a lagged endogenous variable in the estimation procedure. I believe both of the changes to be unsound. Further, implementation of these changes has a result which I believe to be unsound on its face: a virtual insensitivity of Energy profits to excess reserve margins, which is not only illogical and defiant of common sense, but for which there are both factual evidence and numerous pleadings by Dr. Carlson's own clients which rebut it.

7. This affidavit will proceed in three sections, roughly paralleling the format of the Carlson Affidavit. I will not address the long history of the NERA econometric model or the extensive public comments made by Dr. Carlson and others since the NYISO's 2007 ICAP

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[4] Capitalized terms not otherwise defined herein shall have the meaning specified in the NYISO's Market Administration and Control Area Services Tariff.

[5] Carlson Affidavit at 2, P 7.

Demand Curve reset process. He summarizes some of these comments in his Affidavit,[6] and although I disagree with various characterizations that he makes, he is correct that the NERA model has undergone a number of revisions since 2007 and many of those revisions have been made at the request of NYISO stakeholders, including Dr. Carlson's clients.

8. Before I "dive into the weeds" of addressing the deficiencies in Dr. Carlson's diagnosis of the supposed flaws in the NERA analysis, it is important to note, as will be explained and supported in this Affidavit, the result of Dr. Carlson's proposed "cure" for the supposed flaws simply defies common sense. This is best seen in the chart that he presents in Figure 3[7] and essentially repeats in Figure 16.[8] If, after any set of calculations, I had derived the bottom line results that Dr. Carlson did in these two figures (and indeed, as I will describe below, the derivation of such results is not difficult), I would have rejected them for being so unbelievable as to necessarily be the result of some error is the estimation methodology.

9. In presenting Figures 3 and 16 in his Affidavit, Dr. Carlson apparently believes that the energy profits earned by efficient peaking units are almost completely insensitive to excess reserve margins. Dr. Carlson feels that the only plausible interpretation of the data mandates the conclusion that energy profits of an efficient peaking unit are almost the same when the system is seventeen percent above the required reserve margin as when it is five percent short. That conclusion is contrary to our commonsense understanding of electricity markets and would be unheard of in typical simulation models of those markets. Indeed, I am aware of no models of the electricity market in which the addition of in-merit generation does not substantially lower the market price, and certainly no models in which shortages of five percent have virtually the same impact as surpluses of seventeen percent. This includes my experience with the Ventyx (Henwood) models on which Dr. Carlson worked, as well as NERA's own proprietary models of electricity price. Dr. Carlson says (correctly) that the failure to ensure that coefficient estimates are "plausible and realistic from a theoretical

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[6] Carlson Affidavit at 15-22, P 42-68.

[7] *Id.* at 13.

[8] *Id.* at 67.

economic and empirical understanding of the object of study"[9] is a reason to reject the econometrics. On that basis, Dr. Carlson's estimates must be rejected.

10. Dr. Carlson's conclusion is also belied by numerous filings of generators that indicate that increased supply, holding demand constant, has a demonstrably deleterious effect on energy prices.

11. It is my belief that to adopt Dr. Carlson's result in the NYISO's ICAP Demand Curve reset would be a highly radical departure from the Commission's rulings (both NYISO and non-NYISO) in capacity markets, market power calculations, scarcity pricing issues, reliability must-run issues and a host of other issues. Crediting Dr. Carlson's results here would require a wholesale revamping of FERC policies in all these areas.

12. In NYISO ICAP Working Group meetings discussing NERA's methodology, I have said many times that there is no way to derive an answer to the problem of deriving Energy and Ancillary Services revenues as a function of excess reserves through econometrics alone. Dr. Carlson is correct that I have used my judgment as an electricity economist in deriving the results presented here.[10] There is no methodological imperative which so constrains the estimation process so as to make the analyst an automaton. It is appropriate to adjust models to reflect changing understanding of the underlying workings of the market and, most importantly, to reject models which give results that do not make sense. I am a practical applied statistician. If an important coefficient comes out too high or too low from the standpoint of what is known about the energy markets, the analyst who wants to defend that coefficient cannot merely assert that "the econometrics made the analyst do it." The analyst must either produce proof that the econometrics compels a result (manifestly impossible in this case, as discussed below) or present a plausible underlying theory under which people's common understanding is mistaken. Dr. Carlson cannot do the former, and has not done the latter.

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[9] *Id.* at 22, P 69. Note that he also says in this paragraph that the other purpose of diagnostics is to "ensure ... that the statistical assumptions employed in the regression estimation technique were not violated." I agree, but homoskedasticity and a lack of serial correlation are *not*, as we will see below, statistical assumptions of OLS.

[10] *Id.* at 46, P 137.

13. Dr. Carlson and I agree that the estimation of the so-called reserve margin coeficient (also referred to as the "RM coefficient") is made difficult by the relative infrequency with which it changes and the substantial overlap between its calculation for the NYCA and Zone J and Zone K. I have made choices, and those choices have been described in full in the NERA/S&L Report and at ICAP Working Group meetings during the process to develop the proposed Demand Curves. These results are objective in that they are based on a well-articulated, and, as I will discuss below, fully defensible econometric model of the NYISO energy markets. That is my only claim. I do not claim that other consultants might not have gotten coefficients which varied from mine. It would be impossible to do so. However, there is nothing in econometrics which compels the conclusion that I am wrong. I have made no econometric errors. I have instead made judgments. Dr. Carlson is free to disagree with me. But that does not undermine either the process or the result, in my opinion. By contrast, Dr. Carlson's results, implausible on their face, should serve as an indictment of his methodology.

IV. Sample Size

14. Dr. Carlson goes into great detail as to why the RM coefficient is difficult to estimate.[11] I agree that the relative paucity of changes in this variable both across time (it changes only once a month, with substantial changes occurring mostly at seasonal boundaries) and across space (it is at the same level in a given month across NYCA zones other than Zones J and K, which have their own levels determined with reference to their own required margins). His "classic solution" to this problem is to add more data.[12] If there were data which I believed would be appropriate to add, I would agree with him. But my judgment is that adding an additional three years of NYISO data in this situation would be a mistake.

15. First, there is an important issue of identification. As I expressed to the ICAP Working Group on many occasions in both the 2007 and the 2010 ICAP Demand Curve reset processes, when one has market data one must have an identification strategy or the results are meaningless. Market price occurs where the demand curve for energy crosses the supply

[11] *Id.* at 34-45, P 109-132.

[12] *Id.* at 9, P 31.

curve. Merely looking at the points of intersection leads nowhere. An identification strategy tells you what you are looking at. In the case of these econometric estimations, the NERA analysis used the fact that supply changes very slowly relative to changes in demand as an identification strategy. What we see when we control for demand is an estimate of the supply curve. This is why price rises with demand. Had we estimated the demand curve for energy, price would have fallen with demand. And we are armed only with theory and our understanding of electricity markets to justify our methodological strategy.

16. But if we are estimating a supply curve, we must use this method only in times in which the supply curve is not changing radically. If the supply curve is not (relatively) fixed, we risk mistaking changes in supply for movements along the supply curve. This would invalidate the econometrics completely, since we would no longer have any fixed meaning for supply. In practice, of course, this is at least as much art as science. The use of monthly and hourly dummy variables in the model attempts to accommodate well understood supply shifters. The use of interaction terms between NYCA-wide loads and zonal loads attempts to gauge the severity of transmission constraints that limit the utilization of supply in one region for abnormal load levels in another.

17. Extending the model backward in time creates an obvious problem since important market changes occurred over the six year period. Obvious examples are the Neptune line and Cross Sound Cable. The choices are either to incorporate, effectively, time dummies of one sort or another to pick up these changes (a methodology both Dr. Carlson[13] and I reject because of the difficulty it imposes on forecasting) or shortening the period used to keep the system roughly constant.

18. The appropriate data period is important. Too little data throws away variation in the RM variable which, as both Dr. Carlson and I acknowledge, changes very slowly. In addition, shorter periods throw away useful co-variation between the RM variable and other variables in the model. Although that result might appear to suggest going farther back in time for more data, every extension of the model backward in time carries a different risk in which changes in the supply curve undermine the identification strategy. Going too far back will

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[13] *Id.* at 18, P 52.

make the value of the RM variable decline *spuriously*. It declines spuriously because the identification strategy has been violated. Violation of the identification strategy is what I referred to as attenuation bias, because the effects are attenuated, *i.e.*, biased towards zero.

19. The model ideally would hold the supply constant so that changes in the coefficient of RM occur solely because demand increases against this curve, allowing for the measurement of what is, at its base, a peak monthly demand effect measured nowhere else in the model. (Dr. Carlson is well aware of this effect, having produced a previous memo asking me to reformulate the model in these terms, a change I rejected as merely cosmetic.) The structure of the model will incorporate such changes not as a peak monthly effect, but by changing the coefficients of the other demand variables. This biases the coefficient of RM downward towards zero, resulting in attenuation bias through a mistaken identification strategy. Expanding the dataset to capture more years of data is a profoundly poor idea, since it takes substantial supply changes, like those due to introduction in the market of the Neptune line and Cross-Sound Cable, and effectively ignores their contributions, biasing the RM coefficient downwards to the implausibly low levels Dr. Carlson finds.

20. It is possible that some of this problem residually inhabits the three years of data that I have chosen to employ. However, I would argue that the result is that the RM coefficient is probably smaller than it ought to be, *i.e.*, that Energy and Ancillary Services revenues might be expected, if anything, to be somewhat higher than the results presented in the NERA/S&L Report, not dramatically lower as implied by Dr. Carlson. However, as a practical matter, there is little to be done about this; any period shorter than three years simply does not allow enough variation to be usable.

V. Heteroskedasticity and Serial Correlation

21. Dr. Carlson's second set of complaints revolve around serial correlation and heteroskedasticity. Contrary to Dr. Carlson's assertions, neither heteroskedasticity nor serial correlation introduces bias into measured coefficients. This is a theorem[14] and is

[14] *See*, for example, Greene, William; Econometric Analysis, Sixth Edition, Prentice Hall (2007), Theorem 8.1 on p. 150

uncontroversial. Indeed, Dr. Carlson acknowledges the point.[15] But when he asserts that a reason to carry out the diagnostics he proposes is to ensure that the assumptions of the statistical technique are satisfied, [16] he apparently falsely believes that a lack of heteroskedasticity and serial correlation are assumptions of ordinary least squares ("OLS"). They are not assumptions which affect the unbiasedness of OLS.

22. Both heteroskedasticity and serial correlation do affect standard errors, *i.e.*, these problems cause a bias in the precision with which the estimated coefficients are measured. Thus, there is an unbiased measure of the magnitude of the variables, but a biased measure of how confident we should be about them. That is Dr. Carlson's first point, which is not in dispute. However, as I said, and which Dr. Carlson does not contradict, the modern methodology is to use the unbiased technique, OLS, and correct the standard errors to the extent practicable to correct the bias in precision.

23. Dr. Carlson's asserts that "due to the wider variance for the estimated parameter values, it is more difficult to make proper inferences about the model specification, such as whether to retain or drop a variable or change the functional form."[17] Dr. Carlson has not cited the authority he uses to derive this point, and I am not aware of any authority for it. At best, this assertion is correct only under a very narrow set of circumstances. First, if one is using theory to decide what variables to include in the regression, it is obviously incorrect. Second, if one is using the standard errors of particular variables to decide functional form, then the statement is true, but that is not good practice. The NERA model methodology is to look at the magnitude of estimated OLS effects and to look at the residuals from the regressions to fit the model. Standard errors and t-statistics have almost no role in this process. Accordingly, I pay them little heed. When I was asked to do so by Dr. Carlson in relation to the ICAP Demand Curve reset process, I prepared standard errors which, under certain assumptions (which I have no particular reason to believe are accurate) attempt to eliminate the bias in the estimation of standard errors. These had little effect, since they slightly widened the

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[15] *Id.* at 53, P 158.

[16] *Id.* at 22, P 69.

[17] *Id.* at 53 P 158.

estimation interval, but trivially so around the estimated values. This is all discussed in the NERA/S&L Report,[18] and the detailed runs have been turned over to Dr. Carlson.

24. Another attempted argument by Dr. Carlson is that feasible generalized least squares ("FGLS") can be used to correct for these problems,[19] but he then partly agrees with me about the failings of FGLS.[20] Indeed FGLS fails not only because one must estimate the variance-covariance matrix, but because it is only efficient in infinite-sized samples (what econometricians term "consistent").

25. Dr. Carlson's Affidavit also attempts to obfuscate the record in paragraph 182 wherein he chides NERA for using his suggestion to show in the NERA/S&L Report that FGLS makes the RM coefficient rise.[21] Since it was his suggestion during the ICAP Demand Curve reset review process, including during ICAP Working Group meetings, not NERA's, to use FGLS on this nonexistent problem, this point is irrelevant and his attempt to discredit the NERA/S&L Report is at best disingenuous.

26. In this affidavit Dr. Carlson, apparently trying to salvage his previously postulated approach, now proposes a variant on FGLS and an alternative non-FGLS method which yields an answer he now likes. Neither one makes any theoretical sense, as discussed below.

27. Overall, biased standard errors are of little concern. Standard errors are critical for inference, but by themselves, unimportant for prediction. For example, suppose you had to, on penalty of death, guess my weight accurately. You had a choice of two scales: one had a substantial amount of bias in the weight it gave, but was highly accurate about that biased weight. The other scale gave an unbiased answer about my weight, but had slightly more uncertainty around that unbiased estimate. I propose that one would use the unbiased estimate every time, particularly if both the uncertainty and the degree of bias in the uncertainty were small. We have a problem in *point prediction, i.e.*, the RM coefficient, and our uncertainty is of

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[18] *See* NERA/S&L Report at 47.

[19] Carlson Affidavit at 53, P 158-159.

[20] Carlson Affidavit at 53, P 159.

[21] Carlson Affidavit at 61, P 182, second bullet.

little concern. We are not trying to decide if the true effect of RM is nonzero. We know that it is. The OLS coefficient of -1.03 has an adjusted standard error of 0.025. Dr. Carlson's correction to an unbiased estimate is over 15 standard errors away. The fact that the OLS estimate is unbiased strongly suggests that it is the correction that is in error, not the estimate, since after all the correction has made unverifiable assumptions about the specific forms of heteroskedasticity and serial correlation.

28. Correcting standard errors are of little concern to us in this problem since we would perforce accept a measured effect for the RM variable which was not statistically significant. While I prefer more efficient estimates to less efficient ones, unlike Dr. Carlson I am unwilling to make a host of arbitrary assumptions to do so, since I begin with an unbiased method which, as I have demonstrated, has small standard errors even when adjusted to correct bias. This does not mean that my measured values are necessarily correct, as I said in the NERA/S&L Report,[22] because specification error is still a potential problem. But one certainly does not correct specification error by changing econometric methodology with regards to heteroskedasticity and serial correlation. One changes specification error by finding an OLS model which better fits the data under the appropriate identification strategy. At that point, corrected standard errors are only useful for inference, not point predictions. Dr. Carlson's fulminations about "diagnostics" are irrelevant for point predictions under OLS. Generalized correction for heteroskedasticity does not change coefficients; it only changes standard errors. One methodology for the correction of serial correlation (so-called Newey-West errors) also affects the standard errors without affecting the underlying coefficients. I did not use these before Dr. Carlson asked because there is no reason to do so. When he requested it, I performed the additional analysis; all it did was slightly widen standard errors with no effect whatsoever on the coefficients.

29. Dr. Carlson is correct that there is an older methodological tradition (by which I mean around the time that Dr. Carlson and I went to graduate school) which argues that one should "correct" for heteroskedasticity and serial correlation in the estimation process itself. The problem with that view can be simply stated: (1) you cannot correct for something explicitly

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[22] NERA/S&L Report at 47.

without making new assumptions which are almost always unverifiable; (2) the corrections will only be guaranteed to work as the data set grows to infinity, at which point the uncorrected methodology and the corrected methodology will converge anyway; and (3) in small samples, the cure can be worse than the disease, as the corrected method introduces bias (as it must, since OLS is unbiased) which only goes away as the number of observations goes to infinity. The size of this bias is unknowable, but goes a long way to explaining the anomalous answers I mention two paragraphs above.

30. It is this methodological tradition which Angrist and Pischke attack in their article (cited in the NERA/S&L Report[23]) and which the old guard (Leamer, Sims, *etc.*) defends. I acknowledge there are articles that do not agree with Angrist and Pischke; however, the quote Dr. Carlson chooses from Sims which he claims is a criticism of Angrist and Pischke, in fact makes my point – that when you want to know the expected value of y (in this case LBMP) for given values of X (in this case RM and the other independent variables) and when we believe that E(y|X) is not linear, "in that case, ordinary least square regressions...is about the best we can do."[24] Dr. Carlson goes on in the paragraph to say if we have some reason to expect that the effects are linear (which we emphatically do not in this case) or if we want to know more about the standard errors, we can use other techniques.[25] I agree completely.

31. Of course, Leamer, Sims, and other econometricians are entitled to their opinions (even when they agree with me). However, the basic fact that my estimation technique is unbiased is entirely uncontroversial and completely supports my decision to neither test for heteroskedasticity nor serial correlation since I would be unconvinced by the methodologies which then purport to correct for either under untested assumptions. Further, the standard errors for the critical RM variable are small, even after the most common corrections for bias. And neither Dr. Carlson nor any of the authorities he cites dispute in the least that a

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[23] NERA/S&L Report at 46-47, *quoting* Angrist and Pischke, *Journal of Economic Perspectives, Vol 24, No.2, Spring 2010).*

[24] Carlson Affidavit at 63-64, P 187.

[25] Carlson Affidavit at 64, P 187.

methodology which refines error estimates around an OLS estimate is in fact the standard modern method. At best, Leamer, Sims *et. al.* argue that it is a lamentable trend. I disagree with them about this, but that is not the issue. Although standard errors have been a significant topic in econometrics of the last twenty years, in the ICAP Demand Curve reset model and analysis there is strong reason to be essentially unconcerned with standard errors (at least at the magnitudes seen here), thus the use of OLS is not an error. Further, it is wholly appropriate and supported. There is no necessity to implement Dr. Carlson's recommendations, nor is there any advantage to doing so.

VI. Lagged Endogenous Variables

32. Dr. Carlson proposes to use the one-day-lagged LBMP as a regressor to "correct" serial correlation. The use of lagged endogenous variables creates so many problems, and is so antithetical to the problem which is being addressed, that I address this issue separately as a further indication of how incorrect I believe Dr. Carlson's recommendations to be. Indeed, this proposal is a particularly stark example of addressing a problem with a correction that makes the underlying problem worse.

33. Dr. Carlson introduces a one-day-lagged LBMP as a method for "correcting" for serial correlation. It should be obvious at first blush how dangerous this is. Endogenous lagged variables contain virtually no content about the price formation process beyond their perpetuation of error. The fact that high prices yesterday, all things constant, will lead to slightly higher errors today does not inform how much prices respond to installed reserves. Even to the extent they do, some of the effect of reserve margins will be compounded into the lagged endogenous variable, and one depends (at one's peril) on OLS to disentangle the effects. Further one assumes that this particular form of error propagation is what is going on. It is more likely of course that errors propagate not from a day ago but from one hour ago. And of course under this strong assumption, all sorts of variables begin to have odd, impossible magnitudes and signs.

34. This suggestion of Dr. Carlson ties back into the FGLS discussion in Section V above. In spite of it being his own and not my proposal, Dr. Carlson now grants that FGLS, the only previous recommendation he has made to me, has problems as a technique (see discussion in

Section V above and Dr. Carlson Affidavit at Paragraph 159). Nonetheless, at Dr. Carlson's request, when I implemented FGLS, it showed a substantial increase in the RM parameter, as I described in the NERA/S&L Report.[26] Dr. Carlson now complains that I did not implement FGLS the way he wanted, on a daily basis, but on an hourly basis, and when it is implemented on a daily basis, the RM coefficient declines sharply. My response: Exactly.

35. There is massive hourly serial correlation in electricity demand data for an obvious reason – when events cause prices to rise, for example, above what they would be expected to be, the effects of that cause often linger longer than an hour. When the hourly serial correlation is estimated the effect is strongly significant, an effect of about 0.9, meaning that effects which increase the price (or decrease it) decay at the rate of about 10 percent per hour. It is Dr. Carlson's method which is completely *ad hoc*. There is no plausible mechanism by which the error for one day propagates to make the error 24 hours later (as opposed to 23 or 25) higher. In addition, there is no evidence that important economic actors use the 24-hours-previous price as an incentive to take action, which is the *theoretical* reason to include lagged endogenous prices.[27] And yet this is the result he brandishes to show that the RM effect is (counterintuitively) almost zero. This econometric game can be played all day: making spurious corrections and moving the RM coefficient about willy-nilly. Hourly corrections give a coefficient of -1.47. Daily corrections give a coefficient of -0.07. And, not surprisingly, the unbiased OLS result is generally in the middle. And each of Dr. Carlson's purportedly innocuous "corrections" require strong assumptions about the specific functional form of the serial correlation – strong assumptions about which we know nothing.

36. And, of course, none of this has anything to do with the RM parameter. Surely Dr. Carlson does not believe that the effect of excess supply on average electricity prices has anything to do with how long shocks to the system take to decay. Of course, FGLS and lagged endogenous variables assume that they do, so the RM coefficient moves about in odd, implausible ways.

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[26] NERA/S&L Report at 48.

[27] *See, e.g.*, Greene, *op. cit.*, at 670-671.

37. Further, the use of lagged endogenous variables makes forecasts almost impossible. In particular, were Dr. Carlson's recommendations in this Affidavit to be followed, NERA's strategy of implementation of the Special Case Resource adjustments would be impossible, since we'd have to know exactly when the resources are called; otherwise there would be no way of having the effects linger on for day after with some sort of decay.

VII. Summary and Conclusion

38. Dr. Carlson has proposed a set of changes to the econometric model which I reject either as unnecessary and/or likely to introduce significant error into the estimates. I have supported these findings and conclusions with econometric theory and, more importantly, by the results themselves. The art of econometrics requires that results be sensible. Dr. Carlson's are not.

This concludes my affidavit

ATTESTATION

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Jonathan Falk

Subscribed and sworn to before me

this 5th day of January 2011

Notary Public

GRETCHEN P. POLK
Notary Public, State of New York
No. 5003086
Qualified in Westchester County
Commission Expires October 13, 2014

My commission expires: _____

EXHIBIT JF-1

JONATHAN FALK
CURRICULUM VITAE

JONATHAN FALK
Vice President

Mr. Falk is a Vice President in NERA's Energy Practice. He received his B.A., *cum laude*, and M.A. in Economics from Yale University. While completing Ph.D. examination requirements at Yale, he taught courses in microeconomic theory and the history of economic thought.

In NERA's electricity practice, Mr. Falk has consulted with a wide variety of electricity industry participants on a number of issues involving the statistical modeling of investment, industry structure, and both short- and long-run pricing questions. He has substantial experience in dispatch modeling for complex electric systems, especially the development of software for large linear programming-based marginal cost models, including the modeling of both run-of-river and storage hydro systems. He has been involved in the creation of novel insurance products to transfer price risk in electric markets. He was a participant in the design process for the New England Forward Capacity Market. Mr. Falk has also statistically estimated the value of reliability in restructured electric markets. In addition, he has studied market power questions in emerging electricity markets and has estimated the social benefits of real-time pricing options for electricity. His work has also addressed questions of valuation, optimization, and the financial risks associated with restructured electric markets. He has advised on the structure of market rules, including the benchmarking of contracts between affiliated entities. Finally, he has created a number of models to value flexibility in utility planning, including hydro-based uncertainty. Mr. Falk has lectured and written as well on game-theoretic strategies in electric market bidding for both energy and capacity. Mr. Falk has appeared before both state commissions, Canadian provincial commissions and the Federal Energy Regulatory Commission.

As a statistical expert, Mr. Falk has specialized in statistical estimation for both liability and damages and the creation of models to simulate economic processes. He has testified as an expert witness on both general statistical issues and industry-specific studies in electricity and telecommunications.

In NERA's Communications Practice, Mr. Falk has participated in studies on residential access demand to the telephone system, choice of service among telephone company offerings, optimal pricing structures, and estimation of the short- and long-run marginal costs of telephone service.

In environmental economics, Mr. Falk has estimated benefits in recreational activity and increased property values resulting from tighter discharge standards for paper mills and for nuclear power plants.

Mr. Falk has worked on several cases involving credit discrimination in automobile and housing markets. He has also performed statistical analyses to predict credit decisions.

Finally, in labor economics, Mr. Falk has testified both on statistical estimations of liability in termination and promotion processes and in calculations of lost earnings in both wrongful termination and wrongful death cases. In addition, he has testified in several cases on contract damages and has extensive experience in the estimation of damages arising from contract disputes.

Education

Yale University
M.Phil., Economics, 1982
M.A., Economics, 1980
B.A., Economics, 1978

Professional Experience

NERA Economic Consulting

1984- Vice President (current position)

Independent Consultant

1981-1983 Worked for various firms including PM Industrial Economics and MRR Associates on the development of econometric models in energy and financial analysis. Also consulted on installation of microcomputer systems.

Yale University

1980-1981 Teaching Assistant
Taught introductory micro-economics and history of economic thought.

US Department of Transportation

1980 Summer Research Assistant, Energy Policy Division
Analyzed energy related transportation issues, including diesel automobiles, coal slurry pipelines, fuel allocation regulations, and coal export policies.

Professional Activities

Faculty, Practising Law Institute, Employment Law Seminar

Member, American Statistical Association

Publications

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"Is Nuclear Power Compatible with a Deregulated Electricity Market," presented at IFRI-CFE Conference on the Future of Nuclear Power in the US, Paris, France, May 25, 2004.

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"Calculating Economic Damages," presented at the Second Annual Employment Law Litigation Institute, sponsored by the Labor & Employment Law Section of the New York State Bar Association and St. John's University School of Law, Queens, New York, May 16, 1997.

"How to Minimize the Impact of Stranded Costs on Credit Valuation," CBI Conference on Credit Ratings for U.S. Utilities and Power Projects, New York, New York, November 22, 1996.

"Statistics for Labor Lawyers: Using Math to Tell a Story," sponsored by National Employment Lawyers Association, New York, New York, October 29, 1996.

Seminar Participant. "How to Hire and Fire," Practising Law Institute Conference on Employment Law, New York, New York, October 2, 1996.

"Modeling Who Gets RIFed: What's Age Got To Do With It?," luncheon seminar sponsored by National Economic Research Associates, New York, New York, May 1, 1996.

"Econometrics and Marginal Cost," presented at Symposium on Marginal Cost Techniques for Telephone Services, sponsored by The National Regulatory Research Institute, in Seattle, Washington, July 18-19, 1990, and in Columbus, Ohio, August 15-16, 1990.

with Mark Berkman, "Valuing Flexibility in Utility Planning Using Dynamic Programming," presented at Decision Support Methods for the Electric Power Industry Conference, sponsored by Electric Power Research Institute, Cambridge, Massachusetts, May 29-31, 1990.

with Lewis J. Perl, "The Use of Econometric Analysis in Estimating Marginal Cost: The Choice of Functional Form," presented at the International Telecommunications Society, North American Regional Conference, Ottawa, Canada, June 19, 1989.

"Investment in Equipment Modernization: The Question of Prudence," presented at Telecommunications Policy in a Competitive Environment, sponsored by NERA, Scottsdale, Arizona, April 12-15, 1989.

with Lewis J. Perl, "The Use of Econometric Analysis in Estimating Marginal Cost," presented at the Bellcore and Bell Canada Industry Forum, San Diego, California, April 6, 1989.

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