

## Attachment V

**New York Independent System Operator, Inc.** ) **Docket No. XX-XX-000**  
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**JUNE 20, 2014**

**I. Qualifications and Purpose**

1. My name is David B. Patton. I am an economist and the President of Potomac Economics. Our offices are located at 9990 Fairfax Boulevard, Fairfax, Virginia 22030. Potomac Economics is a firm specializing in expert economic analysis and monitoring of wholesale electricity markets. Potomac Economics serves as the Market Monitoring Unit (“MMU”) for the New York Independent System Operator (“NYISO”). Potomac Economics serves in a substantially similar role for ISO New England (“ISO-NE”), the Midwest Independent Transmission System Operator, Inc., and the Electric Reliability Council of Texas.
2. As the MMU for the NYISO, Potomac Economics is responsible for assessing the competitive performance of the markets that the NYISO administers, including the ICAP<sup>1</sup> market, and for assisting in the implementation of a monitoring plan to identify and remedy potential market design flaws and abuses of market power. This work has included preparing a number of reports that assess the performance of these markets and providing advice on numerous issues related to market design and economic efficiency. Prior to Potomac Economics becoming the MMU, I served as the independent Market Advisor to the NYISO.
3. I have worked as an energy economist for 23 years, focusing primarily on the electric utility and natural gas industries. I have provided strategic advice, analysis, and expert testimony in the areas of electric power industry restructuring, pricing, mergers, and market power. I have also advised Regional Transmission Organizations on transmission pricing, market design, and congestion management issues. With regard to competitive analysis, I have provided expert testimony and analysis regarding market power issues in a number of mergers and market-based pricing cases before the Federal Energy Regulatory Commission (“Commission”), state regulatory commissions, and the U.S. Department of Justice.
4. Prior to my experience as a consultant, I served as a Senior Economist in the Office of Economic Policy at the Commission, advocating on a variety of policy issues including

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<sup>1</sup> Terms with initial capitalization not defined herein have the meaning set forth in the NYISO’s Market Administration and Control Area Services Tariff (“Services Tariff”), and if not defined therein, then as defined in the NYISO’s Open Access Transmission Tariff (“OATT”).

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transmission pricing and open-access policies, market design issues, and electric utility mergers. As a member of the Commission's advisory staff I worked on policies reflected in Order No. 888, particularly on issues related to power pool restructuring, independent system operators ("ISOs"), and functional unbundling. I also analyzed the competitive characteristics of alternative transmission pricing and electricity auctions proposed by ISOs.

5. Before joining the Commission, I worked as an economist for the U.S. Department of Energy. During this time, I helped to develop and analyze policies related to investment in oil and gas exploration, electric utility demand side management, residential and commercial energy efficiency, and the deployment of new energy technologies.
6. I have a Ph.D. in Economics and a M.A. in Economics from George Mason University, and a B.A. in Economics with a minor in Mathematics from New Mexico State University.
7. The purpose of this affidavit is to provide my expert opinions regarding various aspects of the NYISO proposed changes in its rules pertaining to units that are forced out of service or mothballed.

## **II. Background**

8. The NYISO in its filing seeks to clarify and refine its rules related to inoperable generators and generators that return from lengthy Forced Outages. These rules are important because they can affect decisions participants make to repair their resources and because they affect participants' eligibility to sell capacity in New York, both of which can substantially affect the capacity market outcomes. Therefore, it is very important that these rules be sound and designed to lead to efficient market prices and decisions by participants.
9. The NYISO's proposed rules for generators during and after being in inoperable states are important because they will determine which generators are able to sell capacity in future auctions. Hence, it is important for the proposal to be consistent with several key design principles used in the NYISO capacity market.

10. The primary purpose of the capacity market is to provide a mechanism for generators to earn the “missing money”—that is the revenue that must be earned by generators (above the net revenue they earn from selling energy and ancillary services) so that sufficient Installed Capacity<sup>2</sup> is in service to satisfy the system’s resource adequacy planning criteria. Over the long-term, the capacity market provides incentives for generators to build new resources and maintain existing resources in sufficient amounts for the NYISO to satisfy its resource adequacy criteria.
11. Before each Capability Year, the New York State Reliability Council (“NYSRC”) and the NYISO establish the capacity market requirements for each location. The statewide requirement (“IRM”) and the local requirements (“LCRs”) are percentages that are used in conjunction with the annual peak load forecast for the following summer to set an installed capacity (“ICAP”) requirement for each location. The capacity demand curve is, in turn, placed relative to the ICAP requirement for each location before each Capability Year. Hence, locations with tight capacity margins (i.e., a small excess of installed capacity relative to the ICAP requirement) exhibit prices high enough to encourage new entry, while locations with large capacity margins exhibit relatively low prices. The IRM and LCRs are set sufficiently high to satisfy the 1-in-10 standard for loss of load expectation. The IRM and LCRs are determined considering the transmission network, the location of each resource, and its forced outage rate over the previous five-year period. Hence, the forced outage rate of each generator over the last five years is ordinarily used as an estimate of its forced outage rate over the upcoming Capability Year. Higher forced outage rates require higher levels of installed capacity, and thus, a higher IRM and LCRs.
12. The NYISO operates an Unforced Capacity (“UCAP”) market rather than an ICAP market in order to provide incentives for suppliers to reduce the forced outage rates of their generators. The amount of UCAP each generator can sell is equal to its ICAP, discounted to reflect the calculation of its forced outage rate under the NYISO tariff (“EFORD”). This way, a 100 MW generator with a low EFORD is able to sell more UCAP than a 100 MW generator with a high EFORD. The UCAP requirement for each location is equal to its

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<sup>2</sup> Capitalized terms used herein that are not otherwise defined herein have the meaning defined in the Services Tariff or in the tariff proposal and filing letter to which this is appended.

ICAP requirement, discounted to reflect the average EFORD of resources in the location. Hence, higher EFORDs reduce the supply of UCAP and the UCAP requirements by corresponding amounts so that the costs paid by load customers are not affected by changing EFORDs in the short-term. However, in the long-term, higher EFORDs will lead to a higher IRM and higher LCRs, which will raise the costs to load customers.

13. The following section addressed four major elements of the NYISO's proposed changes that will important for FERC to consider when evaluating NYISO's filing.

### **III. Comments on Elements of NYISO's Mothball Proposal**

14. Section A discusses the NYISO's proposed rules to limit capacity sales from inoperable generators. Section B explains how a generator might withhold capacity to exercise market power and why it is necessary to expand the NYISO's existing market power mitigation rules to deal appropriately with inoperable generators. Section C explains how the EFORD is used in the NYISO's capacity market and how the NYISO proposes to calculate the EFORD for a generator after it returns from one of the newly-proposed inoperable states. Section D evaluates the proposed provision allowing the temporary use of an interconnection point for reliability purposes.

#### **A. Proposed Rules to Limit Capacity Sales from Inoperable Generators**

15. This section describes the elements of the NYISO's proposal that would limit the circumstances in which a generator that is inoperable could sell capacity while being in an extended Forced Outage. This section also explains why such limitations are important for the efficient functioning of the NYISO capacity market. The NYISO proposes to revise its Services Tariff and limit, to six months, the capacity market eligibility of units in a Forced Outage that have not Commenced Repair. A demonstration of Commenced Repair requires the Market Participant to establish that:
  - i. It has decided to repair its unit and, based on a technical/engineering evaluation, it has a Repair Plan that is consistent with a Credible Repair Plan; and

- ii. It has made appropriate progress on its Repair Plan when measured against the milestones of a Credible Repair Plan.
16. Units that have not demonstrated they have Commenced Repair are reclassified as in an ICAP Ineligible Forced Outage. Units that have Commenced Repair remain in a Forced Outage.
  17. The NYISO proposes to define a Credible Repair Plan as a Repair Plan that would have been developed by a fictional supplier seeking to return a reasonably similar unit to service. If the Commenced Repair determination is sought to extend a unit's Forced Outage, the fictional supplier would have to be determined to have experienced a comparable Forced Outage to the one suffered by the Generator.
  18. Limiting the duration of a Forced Outage to a maximum of six months when the generator is not being repaired is important because it is unreasonable to require load to purchase capacity from generators that are inoperable and may never return to service. Additionally, excluding the generator will allow NYISO to procure replacement capacity that is operable and, therefore, better ensure NYISO reliability.
  19. The NYISO's proposal will continue to allow a generator to remain in a Forced Outage and continue to sell capacity for longer than six months as long as it is being repaired on an timeline comparable to the Credible Repair Plan's timeline. This may be reasonable when resources will be returning to service shortly after the 6 month timeframe. In some cases, this might still lead capacity requirements and capacity prices to be understated. For example, suppose a generator experienced a significant failure in September and began making repairs quickly enough to remain in a Forced Outage and sell capacity beyond six months. If the repair would require 12 months, the generator would be unable to return to service by the following summer peak conditions. Therefore, including the generator in the determination of the IRM and LCRs based on its historic forced outage rate and allowing it to sell capacity would lead the capacity requirements and capacity prices to be depressed.
  20. In this example, it would be better to set the capacity requirements to reflect the unavailability of the generator, since this would induce additional sales from other

resources than would not normally be sold. Therefore, it would be beneficial for the NYISO to further limit the duration of Forced Outages in the future to prevent inoperable generators from selling capacity throughout the summer, particularly if this is known at the time the capacity requirements are determined.

**B. Market Power Mitigation Measures for Inoperable Generators**

21. This section of the affidavit describes market power mitigation measures that the NYISO proposes to ensure that a supplier with market power does not use an inoperable generator to withhold capacity and raise capacity prices above competitive levels. Such measures are important because the proposed rules could result in situations when an unforeseen Forced Outage leads a large generator to move into an ICAP Ineligible Forced Outage (“IIFO”). In a capacity region with limited available supply, this could allow a supplier to exercise market power by simply deciding not to repair the unit. This section summarizes the new rules and discusses why they are necessary to ensure that the capacity market is workably competitive.
22. The NYISO proposes to revise its Services Tariff to subject non-repairing units that have been reclassified as in an ICAP ineligible Forced Outage to the audit and review for physical withholding described in Section 23.4.5.6 of the Services Tariff. The only units that would not be subject to this review are those that have experienced a Catastrophic Failure. Furthermore, the NYISO proposes to:
  - Define Catastrophic Failure as a Forced Outage which would have reasonably required a repair time of at least 270 days from the outage event, had the outage been suffered by a fictional supplier with a similar generating facility.
  - Allow a Market Participant with a unit being reclassified to an ICAP Ineligible Forced Outage to delay its audit and review for physical withholding pursuant to Section 23.4.5.6 until the data for the physical withholding review is available if it has Exceptional Circumstance, as defined in the NYISO filing.
  - Exempt a non-repairing unit in an ICAP Ineligible Forced Outage with Exceptional Circumstances from an audit and review for physical withholding even after its data becomes available if it has Commenced Repair.



23. As proposed, I believe that these rules protect the market from the exercise of market power in cases where a supplier would otherwise have incentives to physically withhold capacity by not making repairs that would clearly be economic for a competitive supplier. Further, I believe the NYISO's proposal appropriately distinguishes between cases of physical withholding and cases where it is uneconomic or infeasible to repair the unit in a short enough time to continue selling capacity.
24. Withholding is distinguished from economic decisions to not repair under the proposed provisions by calling for the NYISO to evaluate whether the decision has a "legitimate economic justification." In general, the decision to not repair a generator would have a legitimate economic justification if the cost of repair, including the risk-adjusted cost of capital, could not be recouped over the reasonably anticipated remaining life of the generator given:
- The duration of the repair;
  - The anticipated prices for capacity, energy, and ancillary services;
  - The costs of operating the generator following the repair; and
  - Any benefits that would be foregone from using the site for another purpose (e.g., repowering).
25. Hence, if the decision to not repair the generator is economically justified, the NYISO will not impose sanctions on the owner for withholding. In addition, the NYISO's proposal includes two additional protections to ensure that a generator is not sanctioned for legitimate behavior when it would be infeasible or outside the control of the owner to repair the generator in a timeframe that would allow the generator to continue selling capacity without interruption.
26. First, the Catastrophic Failure provision provides that if an independent technical expert determines that the generator could not be returned to service within nine months (including time for evaluation, scheduling, and other related work), the generator is deemed to have not been withheld. This provision is reasonable because if a repair requires more than nine months, it is more likely that the costs of repair and the revenues the generator

would earn following the repair would be uncertain, making the evaluation of whether the decision had a legitimate economic justification overly speculative. Furthermore, if a repair requires more than nine months, it is more likely that the generator would be unable to return to service by the next summer peak conditions. Therefore, absent this Catastrophic Failure provision, a generator may feel compelled to sell capacity from a resource that will not be operable for more than nine months and lead capacity prices to be understated (as discussed in Section C).

27. Second, the Exceptional Circumstances provision provides that if circumstances delay or make it impossible to conduct a comprehensive evaluation of the cost of repairing the generation, the physical withholding audit is delayed and the resulting delays are considered when the audit is eventually conducted. Hence, the generation owner will not be at risk of incurring physical withholding penalties for not making repairs based on speculative or incomplete information about the cost and time necessary to make those repairs.
28. These proposed rules will ensure that the market performs competitively when existing suppliers might otherwise withhold capacity. At the same time, the proposed rules will avoid sanctioning competitive behavior by taking adequate consideration of factors that would impede, prevent, or make it uneconomic for a generator to be returned to service before going into an IIFO.

**C. Refining the EFORD Calculation Used for the NYISO's UCAP Market**

29. The NYISO proposes to revise its Services Tariff to modify a unit's derating factor, or EFORD, when the unit is returning from an extended outage. The proposed modification will base the EFORD on the unit's available operating history prior to the outage rather than basing it on the NERC class average derating factor. Specifically, the NYISO proposes to remove from the EFORD calculation any months the unit was in an outage that precluded ICAP eligibility and replace those months with immediately preceding months for which the unit had operating history. I support this proposed modification for two reasons.

30. First, it is generally more accurate to estimate a generator's forced outage rate based on its own operating history rather than a class average. Accordingly, the NYISO proposes to define the relevant period of operating history based on months in which the generator was eligible to sell capacity. This excludes from the EFORd calculation months in which the generator was not operating because it was in an ICAP Ineligible Forced Outage. It is reasonable to exclude such periods because they result from a decision not to operate the generator rather than a propensity for the generator to have Forced Outages in the future.
31. Second, the proposal is reasonable because it avoids requiring customers to pay twice for the same capacity as shown in the following example. Suppose a generator experiences a major outage that requires many months to fix, and the owner begins repairs immediately so that the generator is designated as having Commenced Repair. This would allow the generator to remain in a Forced Outage while selling capacity for an extended period of time during which its EFORd would gradually increase to 100 percent. The owner could then decide to stop repairing the generator. When the resource subsequently returns under the current rules, it would receive an EFORd based on a NERC class average at a much lower level (e.g., 10 percent). This would effectively allow the supplier to be compensated over an extended period when it is not operable and then be compensated at an excessive level as if it had not been compensated during its Forced Outage. This is at odds with what typically occurs when a resource has a forced outage where it is compensated during the outage and then receives reduced compensation because of its increased EFORd when it returns. The NYISO' proposal simply applies this same approach to units that enter an ICAP Ineligible Forced Outage.

**D. Temporary Use of Interconnection Point**

32. The NYISO proposes to revise its Services Tariff to obligate units in a Mothball Outage or an ICAP Ineligible Forced Outage to return to service or allow the use of their interconnection point if it is required to resolve a reliability issue on the bulk or non-bulk transmission system. This proposal includes:
- An obligation to return to service that would attach only following an order establishing compensation for such return by an appropriate regulatory agency.

- A unit that fails to return to service to resolve a reliability issue in a timely manner following the compensation order will be required to pay the additional costs of a transmission solution that utilized its point of interconnection, if any, upon returning to service before the expiration of its outage.<sup>3</sup>
  - The NYISO is not proposing to require compensation be offered for use of an interconnection point to resolve a reliability issue, but the interconnecting Transmission Owner must reconnect the generator at no cost within six months of being notified it is returning to service.
33. As the entities responsible for maintaining reliability, it is important for the NYISO and the TOs in the NYCA to devise rules that would allow them to maintain reliability under circumstances where one or more generators unexpectedly cease to operate. By providing for the use of a Generator's interconnection point, the NYISO's proposal has the virtue of increasing the potential set of solutions to a given reliability need. To the extent this might allow for a lower cost solution, this would reduce the cost of maintaining reliability and potentially reduce the overall market effect of an out-of-market intervention to maintain reliability.
34. Importantly, the NYISO's proposal includes provisions that are designed to avoid infringing on the ability of the Generator to use its interconnection rights or to sell them to another supplier. However, I am concerned that the proposed provisions would not protect the Generator against the potential costs of not having access to its own interconnection point. This could cause the Generator to make an inefficient decision with respect to its use of the interconnection point. For example, if a 200 MW generator experienced a 5 month delay in returning to service because the TO was be unable to return the use of the interconnection point when capacity prices were clearing at \$10/kW-month, it would forego \$10 million of capacity payments and some amount of net revenues from the energy and ancillary services markets.

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<sup>3</sup> The NYISO is not proposing any consequence for such units that do not return to service before the expiration of their outage.

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35. The magnitude of this risk could potentially affect the decision of a supplier about whether to return a generator to service, which could produce inefficient long-term outcomes. In addition to this efficiency concern, these potential risks raise substantial equity concerns. For both of these reasons, the NYISO should ensure that adequate incentives and enforcement exists to ensure that the interconnection point is made available within six months per the NYISO proposal.
36. This concludes my affidavit.

ATTESTATION

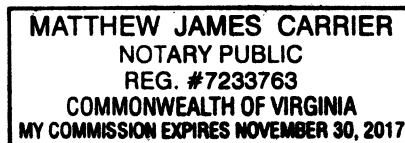
I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

  
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David B. Patton

July 28, 2014

Subscribed and sworn to before me  
this 18th day of July, 2014

  
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Notary Public



My commission expires: Nov. 30, 2017