New York ISO
Independent System Operator

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June 5, 2023

By Electronic Delivery

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: ***New York Independent System Operator, Inc.*, Docket No. ER23-1307-000; Response to Request for Additional Information**

Dear Secretary Bose:

On March 8, 2023, pursuant to section 205 of the Federal Power Act ("FPA"),[1] the New York Independent System Operator, Inc. ("NYISO") filed proposed revisions to Sections 26.4.2.2 and 26.4.2.6 of its Market Administration and Services Tariff ("Services Tariff") to revise the methodology used to calculate credit requirements for Virtual and External Transactions.[2] On May 5, 2023, the Federal Energy Regulatory Commission ("Commission") issued a notice requesting additional information regarding certain aspects of the NYISO's proposal ("Notice").[3] The NYISO hereby submits responses to the questions set forth in the Notice.[4] The NYISO respectfully requests that the Commission (i) issue an order accepting the proposed revisions to the Services Tariff that are filed herewith at the end of the standard sixty-day notice period under FPA section 205 (*i.e.*, by August 4, 2023); and (ii) allow the proposed changes to become effective on September 12, 2023, when the NYISO plans to implement the software changes associated with the revisions.

I. Background

As discussed in the NYISO's initial filing, NYISO Market Participants submit Bids in the Day-Ahead Market for Virtual and External Transactions.[5] Because these Bids are then settled in the Real-Time Market, the corresponding NYISO credit requirements rely on price

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[1] 16 U.S.C. § 824d.

[2] New York Independent System Operator, Inc., Proposed Tariff Revisions to the Credit Requirements for Virtual Transactions and External Transactions, Filing Letter, Docket No. ER23-1307-000 (Mar. 8, 2023) ("2023 NYISO Filing").

[3] New York Independent System Operator, Inc., Proposed Tariff Revisions to the Credit Requirements for Virtual Transactions and External Transactions, Notice, Docket No. ER23-1307-000 (Mar. 8, 2023)

[4] Capitalized terms not defined herein have the meanings set forth in the Services Tariff.

[5] 2023 NYISO Filing at 2.

differentials between the Day-Ahead and Real-Time Markets to calculate the financial risk exposure that the Virtual and External Transactions present to the NYISO-administered markets.[6] The NYISO calculates the credit requirements based on historical price differential data.[7] The NYISO also groups Bids based on risk characteristics that include location, season, day, and time-of-day ("Price Differential Groups").[8] These Price Differential Groups are intended to result in credit requirements that appropriately reflect the risk associated with each Bid.[9]

The current NYISO Virtual and External Transaction credit requirements are based on the historical differential between Day-Ahead and Real-Time energy prices observed at the 97th percentile within Price Differential Groups with a look-back extending to April 1, 2005. The current credit requirements therefore are determined, in part, by market outcomes nearly twenty years ago. Changes to the New York transmission grid, resource mix, and demand patterns over this timeframe, as well as the substantial changes anticipated in the near future, will impact the price differentials observed between the Day-Ahead and Real-Time Markets and warrant a review of the look-back period and Price Differential Groups used to determine Virtual and External Transaction credit requirements. In developing the proposed adjustments to the current Virtual and External Transaction credit requirements, the NYISO separately and collectively assessed the cost of credit support and improved coverage of payments due from changes to the zonal and hourly groupings, the look-back period, and the percentile threshold used to set the credit requirement.[10]

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[6] *Id.*

[7] *Id.*

[8] *Id.* *See* Services Tariff §§ 26.4.2.2.1, 26.4.2.2.2, 26.4.2.6. For Virtual Transactions, these groups are referred to in Services Tariff section 26.4.2.6 as "Virtual Supply Groups" and "Virtual Load Groups," and for External Transactions the groups are referred to in sections 26.4.2.2.1 and 26.4.2.2.2 as "Import Price Differential groups" and "Export Price Differential groups." For ease of reference, these groups are referred to collectively as "Price Differential Groups."

[9] 2023 NYISO Filing at 2.

[10] In general, after a credit policy is implemented, the NYISO gathers historical data on the operation of the policy and analyzes the data to determine if the credit policy is performing as intended. If the policy is not, the NYISO will re-evaluate the policy and discuss potential enhancements with stakeholders, as it did in this case. *See* RTO/ISO Credit Principles and Practices, Opening Remarks of Sheri Prevratil on Behalf of the New York Independent System Operator, Inc. at 8, Docket No. AD21-6-000 (Mar. 1, 2021). When the NYISO implemented the Virtual Transaction credit requirements in 2009, it contemplated revisiting the statistical validity of the proposed Price Differential Groups after additional years of Energy price data were available. *See* New York Independent System Operator, Inc., Proposed Tariff Revisions to the Credit Requirements for Virtual Transactions, Filing Letter at 6, Docket ER09-1010 (Apr. 17, 2009).

II. Response to Additional Information Requests

The NYISO submits the responses below to the questions set forth in the Notice:

Question 1:

1. Please provide an explanation of what metrics, if any, NYISO used to weigh the decreased risk of default against the burden of higher credit requirements, including, for each metric used:

(i) the value or range of values that achieve a just and reasonable balance between default risk and credit requirement levels, and

(ii) an explanation of why this value or range of values achieves a just and reasonable balance.

Response:

A. Overview of the NYISO's Analysis of the Proposed Changes to Credit Requirements

The NYISO conducts a cost-benefit analysis when considering any potential change to its credit requirements. The NYISO's evaluation of whether a proposed credit requirement would provide a reasonable balance between the decreased risk of default and the burden of higher credit requirements is informed by two fundamental considerations. First, for Virtual Transactions, the NYISO generally seeks to establish credit requirements that provide credit coverage[11] of historic payment obligations between 97% and 99% of potential payment obligations at the portfolio level on a two-day[12] basis.[13] Second, the credit requirements for individual Market Participants—and any enhancements to those requirements—should be

[11] "Credit coverage," as used here, includes both unsecured credit granted to individual Market Participants based on their financial qualification and acceptable forms of collateral.

[12] The NYISO requires two days of credit support for Virtual and External Transaction positions. Analysis of the entire two days of credit support required for portfolios is the "two-day basis" referenced in this filing. The NYISO, however, issues credit calls for losses on a daily basis, so an analysis of each day of credit support is also warranted. Analysis of each day of credit support required for portfolios is the "one-day basis." The NYISO Credit Management System will remove and prevent the submission of Bids for a third day in the morning of the second day unless adequate credit is posted to cover losses from the prior day. *See* Services Tariff §§ 26.7.2, 26.9.2.

[13] As explained below in Section D, Analysis of External Transactions, the External Transaction credit requirement uses a methodology comparable to the one used to calculate credit requirements for Virtual Transactions applied to a very small subset of Import transactions that would be classified as Virtual trading rather than physical Import supply, because those transactions present financial risk exposure similar to that of Virtual Transactions. For this reason, the NYISO seeks to establish the same range of credit coverage for both Virtual Transaction and External Transaction credit requirements.

warranted by a sufficient reduction in risk to the market from nonpayment defaults relative to any associated increase in credit requirements.

Based on these considerations, the NYISO focuses its analysis on the metrics below to assess the potential costs and benefits of a proposed enhancement to its credit requirements. The NYISO assessed these metrics at the level of individual Virtual Transactions, overall historical Virtual trader portfolios, historic Virtual Supply and Virtual Demand sub-portfolios,[14] and the portfolios of individual Virtual traders with uncovered daily losses exceeding $500,000.[15]

- Total Percentage of Historic Payment Obligations Covered: The percentage of historic payment obligations that would have been covered by the proposed credit requirement.

- Percentage Change in Historic Payment Obligations Covered: The percentage increase or decrease in the total amount of historic payment obligations that would have been covered by the proposed credit requirement (*i.e.*, the impact of the proposed change relative to the existing credit requirement).

- Percentage Change in Credit Support: The percentage increase or decrease in credit support resulting from the proposed credit requirements relative to the existing credit requirements.

The NYISO engaged Scott Harvey of FTI Consulting, Inc. to perform an analysis of and advise on the Virtual Transaction and External Transaction credit design. The NYISO has engaged Mr. Harvey to evaluate market design and performance issues since the inception of the NYISO in 1999, including advising on the original Virtual Transaction[16] and External Transaction[17] credit designs that were approved by the Commission. Mr. Harvey's affidavit describing his experience, background, involvement in the NYISO's analysis of the proposed credit design, and basis for determining that the proposed credit design results in reasonable levels of credit coverage is attached hereto as Attachment I. Mr. Harvey's *curriculum vitae* is appended as Attachment II.

It is important to note that the proposed changes affect only the credit requirements for submitting (1) Virtual Transaction Bids and (2) a very small subset of External Transaction Bids. As these Bids move through the settlement process, the credit requirements are updated to

[14] This "sub-portfolio" analysis looks only at the Virtual Supply or Virtual Demand positions within a portfolio that contains both types of positions.

[15] *See* Affidavit of Scott Harvey, Attach. I, at P 59.

[16] *See* New York Independent System Operator, Inc., Proposed Tariff Revisions to the Credit Requirements for Virtual Transactions, Docket ER09-1010 (Apr. 17, 2009) ("2009 NYISO Filing").

[17] *See* New York Independent System Operator, Inc., Proposed Tariff Revisions to Establish a Distinct Credit Requirement for External Transactions, Docket No. ER13-1199 (Mar. 29, 2013) (2013 NYISO Filing").

incorporate amounts owed to the NYISO for cleared Virtual and External Transactions.[18] The credit requirements discussed in this filing are those that apply to Virtual Transactions and certain External Transactions from the time they are submitted in the Day-Ahead Market until the Real-Time settlements are known. This approach reflects the potential nonpayment default risk associated with a Bid when it is submitted, and then aligns the continuing credit requirement with the best assessment of potential nonpayment default risk as actual settlement data becomes available.

In evaluating the proposed enhancements to the credit requirements for submitting Bids on Virtual and External Transactions, the NYISO and Mr. Harvey reviewed both individual Bid-level data as well as portfolio-level data. These analyses provide important visibility into potential risks associated with Virtual Transaction positions by time of day, location, and season, as well as an understanding of the risks associated with actual portfolios that historically have been assembled by Market Participants.

B. Bid-Level Analysis

The NYISO first conducted a Bid-level analysis to evaluate whether there was adequate credit coverage for potential individual Bids for Virtual and External Transactions under the existing credit requirements by evaluating the Price Differential Groups for 1-MW transactions between May 2007 and December 2021.[19] The NYISO also evaluated credit coverage based on various look-back periods within this date range. This Bid-level analysis provides important visibility into the potential for inadequate credit coverage for individual Virtual and External Transactions without regard to additional credit that may be posted to cover other Virtual positions within a Virtual trader's portfolios that do not result in payment obligations.

In its evaluation of Virtual Transactions, the NYISO determined that Virtual Supply presents a higher risk of nonpayment default under the current credit requirements than Virtual Demand. Virtual Supply positions incur losses when Real-Time Market prices exceed Day-Ahead Market prices, while Virtual Demand positions incur losses when Real-Time Market prices are lower than Day-Ahead Market prices. This distribution is not symmetric, because Real-Time Market prices can rise to very high levels when there are reserve shortages, while they rarely fall below zero. Therefore, there is a greater potential for significant losses on Virtual Supply Bids than on Virtual Demand Bids.

This difference is partly accounted for in the NYISO's credit requirement calculations, because the 97th percentile threshold is applied separately to the losses of Virtual Supply and Virtual Demand positions, which generally results in a higher credit requirement for Virtual

[18] *See* Services Tariff §§ 26.4.2.2.1(3), 26.4.2.2.2(4) (upon completion of the hour Bid in real-time, the credit requirement no longer uses Price Differential Groups); *see also id.* § 26.4.2.6 (iii) (pertaining to the "net amount owed to the ISO for settled Virtual Transactions."). Similar to External Transactions, Virtual Bids settle hourly.

[19] As discussed further in the response to Question 3(ii), below and in the Harvey Affidavit, a time period of May 2010 through December 2021 was used for comparisons to look-back periods requiring five years of post-May 2005 data. *See* Harvey Aff. at P 9.

Supply positions than on Virtual Demand positions. However, there are still larger potential losses on Virtual Supply Bids than on Virtual Demand Bids with credit requirements based on a 97th percentile threshold, because the 3% of Virtual Supply positions with the highest losses incur much more extreme losses than is the case for the 3% of Virtual Demand transactions with the highest losses. The impact of these differences in the dispersion in outcomes within the 97th percentile can be seen in Tables D-1 and D-2 in the NYISO's November 30, 2022 (revised January 20, 2023) presentation to the Management Committee,[20] which shows that a credit requirement based on a 97th percentile threshold results in different coverage levels from zone-to-zone and time period-to-time period, as well as between Virtual Demand and Virtual Supply.

In the Bid-level analysis, the NYISO compared the percentage of historic payment obligations that would be covered by the existing and proposed credit requirements. The NYISO also examined the ratio of the incremental change in credit coverage of historic payment obligations to the incremental change in credit requirements. This analysis indicated that the NYISO's proposed hourly groupings, individual zone proposal, look-back period, and application of a 98% threshold to determining the Virtual Supply credit requirement resulted in credit coverage in the target 97-99% range at the portfolio level.

Some of the data used in the Bid-level evaluation are reported in the NYISO Management Committee Presentation. For example, Tables D-1 and D-2 from Slide 30 of the NYISO Management Committee Presentation report the percentage of payment coverage resulting from different look-back periods for Virtual Demand and Virtual Supply, showing a significant difference between Virtual Demand and Virtual Supply positions when the same Price Differential Groups and 97% threshold are used to determine credit requirements.[21] The NYISO also evaluated data regarding credit support, payments due, and uncovered payments at the Bid-level in different seasons and for different hourly groupings, as shown in Table 1 on Slide 35 of the presentation.[22] The NYISO Management Committee Presentation contains other examples of analyses that the NYISO used to determine whether various changes to the hourly groupings, zonal groupings, and look-back periods for Virtual and External Transactions resulted in coverage of payment obligations in the range of 97-99% at the Bid-level, and how such changes would increase or decrease credit support.

C. Portfolio-Level Analysis

After determining that the proposed credit requirements provided credit coverage of historic payment obligations in the target 97-99% range for Virtual Transactions based on a Bid-level analysis, the NYISO assessed how well they would cover payment obligations based on

[20] *See* NYISO, *Virtual and External Transactions – Proposed Changes* (Jan. 20, 2023) ("NYISO Management Committee Presentation"), attached hereto as Attachment III and found at https://www.nyiso.com/documents/20142/34647738/9%20Presentation%20-%20Virtual%20and%20External%20Transactions%20-%20Proposed%20Changes_11-30-2022%20MC.pdf.

[21] *Id.* at 30.

[22] *Id.* at 35.

actual Market Participant portfolios for one-day and two-day coverage periods from May 2010 through December 2021. As described above, the NYISO focused its evaluation on the percentage of historic payment obligations covered, the percentage change in historic payment obligations covered, and the percentage change in credit support. This analysis confirmed the findings of the Bid-level analysis regarding differences in coverage levels for Virtual Supply and Virtual Demand. The current credit requirements yield insufficient credit coverage for Virtual Supply-only portfolios and for Virtual Supply positions within a portfolio (a sub-portfolio) as compared with Virtual Demand-only portfolios and sub-portfolios. The following table shows a summary of the results of the NYISO's two-day portfolio-level analysis of Virtual Transactions for separate Virtual Supply and Virtual Demand portfolios:

Table 1
2-Day Virtual Supply and Virtual Demand Sub-Portfolio Coverage
May 1, 2010 - December 30, 2021
Alternative Hourly Grouping, Individual Zone Credit Support Applied to Historical Portfolio Data

Portfolio	Percentile Credit Support	Duration	Percent Portfolios Uncovered	Percent Portfolios Covered	Percent Historic Payment Obligations Uncovered	Percent Historic Payment Obligations Covered	Credit Support ($Millions)	Percent Change in Credit Support from Current	Payments Due ($Millions)	Uncovered Payments Due ($Millions)	Percent Change in Uncovered Payments Due from Current
Supply	97th	Current	0.69%	99.31%	5.84%	94.16%	10462.03		615.9	35.96	
	97th	Alternative 3	0.78%	99.22%	6.24%	93.76%	9305.1	-11.06%	615.9	38.45	6.92%
	98th	Alternative 3	0.44%	99.56%	3.76%	96.24%	12460.4	19.10%	615.9	23.16	-35.60%
Demand	97th	Current	0.72%	99.28%	2.36%	97.64%	4564.08		522.74	12.33	
	97th	Alternative 3	0.95%	99.05%	2.48%	97.52%	4132.65	-9.45%	522.74	12.95	0.00%

The NYISO's cost-benefit analysis on the proposed credit requirements yielded favorable results. Table 1 shows that changing the credit coverage for Virtual Supply Bids from the 97th percentile to the 98th percentile and applying the NYISO's proposed changes to the credit requirements increases the credit support required for Virtual Supply sub-portfolios by 19.1% and decreases uncovered payments by 35.6%. Because the application of the proposed credit requirements to Virtual Supply results in coverage of those portfolios slightly under the 97-99% target, the NYISO also investigated applying a 99th percentile threshold to Virtual Supply. The NYISO found that the resulting increase in credit support was excessive relative to the increase in coverage of payment obligations.[23] The NYISO therefore concluded that the coverage for Virtual Supply resulting from application of the 98th percentile threshold was reasonable.

In the case of Virtual Demand Bids, the NYISO's proposed changes decrease the credit support by 9.45% while increasing the percentage of uncovered payments by only 5.03% based on the 97th percentile threshold. Although the proposed credit requirements produce a modest increase in uncovered payment obligations on Virtual Demand Bids, the NYISO proposes to apply the proposed credit requirements to Virtual Demand at the 97th percentile because the percentage of covered payments for Virtual Demand sub-portfolios (97.52%) is within the target range based on a 97% threshold. In addition, the hour-by-hour analysis of coverage carried out by the NYISO, but not included in the NYISO Management Committee Presentation, showed extremely low average coverage levels for Virtual Supply positions over some hours of the day

[23] *See* Harvey Aff. at P 44 & n.14.

based on a 97th percentile threshold, but the same low coverage levels were not observed for Virtual Demand positions.[24]

Furthermore, Table 2, below, shows that relative to the current credit requirements, for Virtual Supply and Virtual Demand in the aggregate, the proposed requirements result in a 29.10% overall decrease in uncovered payment obligations while increasing credit support by only 10.43%.

Table 2
2-Day Portfolio Coverage
May 1, 2010 - December 30, 2021
98th Percentile for Virtual Supply, 97th Percentile for Virtual Demand
Alternative Hourly Grouping, Individual Zone Credit Support Applied to Historical Portfolio Data

Portfolio	Percentile Credit Support	Duration	Percent Portfolios Uncovered	Percent Portfolios Covered	Percent Historic Payment Obligations Uncovered	Percent Historic Payment Obligations Covered	Credit Support ($Millions)	Percent Change in Credit Support from Current	Payments Due ($Millions)	Uncovered Payments Due ($Millions)	Percent Change in Uncovered Payments Due from Current
Supply + Demand	97th	Current	0.44%	99.56%	2.84%	97.16%	15026.12		751.09	21.34	
	Aggregate (Supply - 98th and Demand - 97th)	Alternative 3	0.40%	99.60%	2.01%	97.99%	16593.05	10.43%	751.09	15.13	-29.10%

Importantly, as shown in the highlighted cell in Table 2, the proposed requirements would have provided overall coverage of historic payment obligations nearing 98% at the portfolio level on a two-day basis over the 2010 through 2021 period.[25] Accordingly, the NYISO determined (with unanimous support from its stakeholders) that the proposed credit requirements provide a reasonable balance between the decreased risk of default and the burden of higher credit requirements.

D. Additional Considerations

In addition to the quantitative analysis described above, the NYISO also considered several other factors in developing the proposed credit enhancements.

First, the NYISO seeks to avoid undue complexity. It would be possible to achieve somewhat improved credit coverage by using a range of thresholds across different seasons and times of day. Nevertheless, the NYISO proposes to apply a single 97% threshold to Virtual Demand Bids and a single 98% threshold to Virtual Supply Bids across all seasons and times of day to avoid undue complexity.

Second, the NYISO considers the statistical validity of assessments of price volatility.

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[24] *See* Harvey Aff. at P 58.

[25] It is also notable that the proposed credit requirements would have covered the losses on 99.6% of all portfolios. The coverage is higher for portfolios than for payments due because the portfolios that are not covered have larger losses than those that are covered.

For example, although the NYISO seeks to calculate credit requirements that are closely related to the expected price volatility in a particular hour, it may not be possible to accurately measure the volatility if there is insufficient data to generate statistically reliable results. This consideration is discussed further in the response to Question 2 and in the supporting affidavit of Scott Harvey.

Third, the NYISO attempts to avoid unacceptably low coverage levels for transactions in particular hours of the day or particular seasons throughout the year. Applying standard credit rules over the year may result in very low credit coverage of Bids in particular hours or groupings of hours, or seasons of the year. This consideration played an important role in the NYISO's 2009 decision to shift to hourly groupings that varied between summer, winter, and shoulder months, and also between Virtual Demand and Virtual Supply.[26] In the current review, the NYISO analyzed not only credit coverage by groups of hours and seasons, but also coverage in every individual weekday hour and every individual weekend hour. This detailed analysis led the NYISO to develop hourly groupings that varied by season and over weekend days to avoid unacceptably low expected credit coverage in particular hours, while also avoiding unduly high credit requirements in other hours. While adjustments to the hourly groupings increased credit requirements in some hours relative to the current groupings, they reduced credit requirements in other hours.

E. Analysis of External Transactions

The NYISO first proposed distinct credit requirements for External Transactions in 2013.[27] Before then, External Transactions were included in the calculation of a Market Participant's credit requirement for Energy and Ancillary Services, which was based on historical purchases.[28] The NYISO proposed distinct External Transaction credit requirements because it found that a Market Participant's past activity was not an accurate predictor of future activity for External Transactions.[29] Unlike energy purchases, which are conducted to meet physical load-serving obligations, External Transactions are affected more by price differentials between control areas and the availability of transmission lines, meaning that these transactions are more variable on a day-to-day basis than energy purchases.[30]

As part of this overall revision of the credit requirements applicable to External Transactions, the NYISO also addressed issues that had arisen with some Market Participants that appeared to be using Import transactions in the Day-Ahead Market to engage in Virtual Transactions without being subject to the Virtual Transaction credit requirements. In evaluating the original External Transaction credit requirements, the NYISO proposed, and the Commission accepted, the use of the methodology comparable to the one used to calculate credit requirements

[26] *See* 2009 NYISO Filing at 3.

[27] *See* 2013 NYISO Filing.

[28] *Id.* at 3.

[29] *Id.*

[30] *Id.*

for Virtual Transactions. This applies to a very small subset of Import transactions that would be classified as Virtual Transactions rather than physical Import supply using the proposed rules.[31] The NYISO does not propose any changes to the rules that determine the applicability of the Virtual Supply and Virtual Demand credit requirements to External Transactions, which have worked well over the past decade. The proposed changes would apply the same changes in hourly groupings, look-back periods and thresholds to the calculation of the credit requirements for the small subset of External Transactions that are subject to the External Transaction credit requirements.

To confirm that the revised methodology for Virtual Transactions would provide sufficient coverage of the subset of External Transactions subject to credit requirements, the NYISO performed a Bid-level analysis of what the coverage would have been for an External Transaction Bid submitted at each Proxy Generator Bus in each hour of the period May 2007 through December 2021. The NYISO evaluated these results, which are shown on Slide 52 of the NYISO Management Committee Presentation,[32] and confirmed that the credit coverage patterns for External Transactions were similar to those for Virtual Transactions—specifically that the coverage for Exports (which functions like Virtual Demand) was higher than for Imports (which functions like Virtual Supply), and that there were small improvements in moving from the current hourly groupings to the alternative hourly groupings.[33] Because the External Transaction credit requirements apply only to a small subset of External Transactions and only a small number of Market Participants are subject to the requirement, the NYISO did not believe that a portfolio analysis of External Transactions was necessary to determine that the methodology for Virtual Transaction credit requirements continues to be just and reasonable. In addition, given the relatively few External Transactions that are covered by the External Transaction credit requirements,[34] the NYISO does not believe that a portfolio analysis of External Transactions is necessary or meaningful.

<u>Question 2:</u>

2. Please support the proposed look-back period duration, including a narrative explanation for the assertion that "longer look-back periods... may result in credit

[31] *N.Y. Indep. Sys. Operator, Inc*., 143 FERC ¶ 61,229, at PP 8, 26 (2013). The Import Credit Requirement does not apply if "(i) the Customer has at least 50 scheduled Day-Ahead Import Bids in the three-month period ending on the 15th day of the preceding month (or the six-month period ending on the 15th day of the preceding month if the Customer has fewer than 50 scheduled Day-Ahead Import Bids in the immediately preceding three-month period), and (ii) fewer than 25% of the MWhs of such scheduled Day-Ahead Import Bids were settled at a loss to the Customer." Services Tariff § 26.4.2.2.1.

[32] *See* NYISO Management Committee Presentation, *supra* note 20, at 52.

[33] Because credit requirements for External Transactions are already calculated separately for each Proxy Generator Bus, there was no analysis similar to the zonal analysis for Virtual Transactions to consider.

[34] The External Transaction Virtual Demand credit requirements apply only to very low-price Exports that likely only occur a few hours a year.

> *requirements that do not appropriately reflect changes in system conditions or increased price volatility."*

Response:

The current look-back period uses data from April 1, 2005, through the end of the month before a Bid is submitted. The NYISO evaluated whether this look-back period provides the most appropriate data set for determining credit requirements for Bidding on Virtual and External Transactions. The duration of the look-back period impacts the data set and resulting analysis in various ways. It is important to select a look-back period that is neither too short nor too long.

- Longer look-back periods provide more data for a historical analysis, but are slower to reflect changes in market design, market conditions, and resource mix.

- Shorter look-back periods provide more rapid adjustments to credit requirements as price volatility and system conditions change over time, but they can produce dramatic changes to credit requirements even when there is no lasting change in underlying price volatility.

- Shorter look-back periods reduce the sample size available for analysis, which can adversely impact the accuracy of credit requirements. Smaller sample sizes will tend to yield credit requirements with larger differences between the requirement and actual market price variability. When the estimate is significantly higher, credit requirements will be higher than intended. Conversely, when the estimate is significantly lower, the credit requirement will be lower than intended.

- Anticipated changes to the New York transmission system and resource mix over the next decade further support shifting toward a shorter look-back period so that changes in price variability are reflected in credit requirements without a long delay.

The NYISO analyzed month-to-month variations in credit requirements calculated using a variety of look-back periods, by season and zone, to determine what period would provide the most appropriate credit coverage. The NYISO considered one-year, two-year, and five-year look-back periods, along with three alternative weighted designs ("Alternative 1," "Alternative 2," and "Alternative 3"). This analysis confirmed that the one-year look-back period, at times, resulted in month-to-month swings in credit coverage from anomalously low to anomalously high.[35] These results confirmed that a simple one-year look-back period was too short and was prone to calculating credit requirements that did not provide accurate credit coverage levels.[36] A two-year look-back period yielded similar, but less extreme, limitations.

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[35] Harvey Aff. at P 35.

[36] *Id.*

A five-year look-back period, on the other hand, provides a larger sample size and a more accurate estimate of the shape of the tail of the distribution of Bidding outcomes.[37] However, the NYISO's analysis showed that the five-year look-back period resulted both in higher aggregate credit requirements across all Market Participants and higher aggregate uncovered payments than the proposed Alternative 3 weighted design discussed below.[38] This indicates that a five-year look back period does not align credit requirements with observed payment obligations as well as would be the case with any of the three weighted designs.

As discussed above, there can be large changes in market conditions, market rules, and the resource mix over a multi-year look-back period, meaning that a long look-back period may not accurately estimate the current distribution of Bidding outcomes when such changes are occurring. Over the next decade, the NYISO expects to see material changes in the New York Control Area's resource mix, supply-demand balance, and market conditions, all of which support a look-back period that places greater weight on recent outcomes than was previously thought appropriate.[39] Conversely, however, the analysis found that one- and two-year look-back periods can lead to erroneously high and low credit requirements because of the small number of data points included in the determination of the 97^{th} or 98^{th} percentile.[40]

The NYISO's analysis indicates that its proposed Alternative 3 weighted look-back period, applying one-third of the weight on historical data from the most recent year preceding the Bid and two-thirds of the weight on historical data from the previous five years, provides the most appropriate look-back.[41] The rationale is twofold.

First, comparison of credit support and observed uncovered payment obligations under the five-year look-back period to those under the proposed weighted look-back periods show that, for the current hourly groupings, the recommended Alternative 3 weighted design would have both materially reduced credit support and reduced uncovered payment obligations as compared to a simple five-year look-back period based on the same 97^{th} percentile threshold.[42] Table 1 for Virtual Supply found on Slide 35 of the NYISO Management Committee Presentation shows that the five-year look-back design would have required an aggregate of $50,625,144 in credit support and result in uncovered payment obligations of $1,614,320 in aggregate over the period studied.[43] In contrast, look-back Alternative 3 would have required an aggregate of only $49,666,845 of credit support, while resulting in uncovered payments due of

[37] *Id.* P 36.

[38] See NYISO Management Committee Presentation, *supra* note 20, at 35, 40; *see also* Harvey Aff. at PP 55-59.

[39] *Id.* P 37.

[40] *See id.* PP 33-35.

[41] *See id.* P 38.

[42] *See* NYISO Management Committee Presentation, *supra* note 20, at 35.

[43] *Id.*

$1,612,344 in aggregate over the same period.[44]

Second, the current look-back period would have produced slightly higher average coverage of payment obligations at the individual Virtual Transaction level than the Alternative 3 design based on a 97th percentile threshold—75% compared to 74%.[45] However, the current design would require more than $4.2 million in additional credit support than the proposed Alternative 3 design, while only reducing uncovered payments due by approximately $60,000—a credit-to-uncovered payment due ratio of more than 70-1.[46] As discussed above in response to Question 1, the NYISO's evaluation metrics include the ratio of the incremental change in credit coverage of historic payment obligations to the incremental change in credit requirements. The NYISO determined that this 70-1 ratio is too high.

Accordingly, the NYISO recommends the weighted Alternative 3 look-back period as a reasonable balance of the costs and benefits of short- and long-term look-back periods. The long-run component prevents the overall credit requirement from falling too low when there is a transitory period of low volatility, and also prevents the requirement from rising dramatically every time there is an episode of high real-time price volatility. The short-run component, on the other hand, is designed to ensure that credit requirements will be responsive to changes in underlying price volatility.

<u>Question 3(i):</u>

3. Please explain how NYISO determined that the 97th percentile threshold is appropriate for virtual demand and export transactions but resulted in inadequate coverage for virtual supply and import transactions, and relatedly why the 98th percentile threshold is appropriate for virtual supply and import transactions. In this explanation, please include:

Please see the NYISO's response to Question 1 above. The NYISO determined that the 97th percentile threshold is appropriate for Virtual Demand Transactions but not for Virtual Supply Transactions, because applying the current credit requirements at the 97th percentile results in coverage of 91.2% of Virtual Demand Bids under a Bid-level analysis,[47] but only 75% of Virtual Supply Bids.[48] This is a significant difference in coverage that increases default risk for Virtual Supply Transactions.[49]

The NYISO also conducted a portfolio analysis on Virtual Supply- and Virtual Demand-only portfolios. As shown in Table 1 above, the NYISO found that under the current credit

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[44] *Id.*

[45] *Id.*

[46] *Id.*

[47] *Id.* at 40.

[48] *Id.* at 35; Harvey Aff. at P 42.

[49] *Id.*

requirements, the overall two-day coverage of Virtual Demand-only portfolios and sub-portfolios was 97.64%, while that of Virtual Supply-only portfolios and sub-portfolios was 94.16%.[50] The relatively poor coverage of Virtual Supply positions is particularly important because over the 2010-2021 period, 26.22% of all daily Virtual trading portfolios consisted of Virtual Supply-only Bids.[51]

Please see Section B: Bid-Level Analysis, *supra*, for an explanation of why applying a 97% threshold to Virtual Demand Bids results in significantly higher coverage of payments due than the same threshold applied to Virtual Supply Bids.

(i) How the 97th and 98th percentile thresholds perform on the metrics provided in your response to Question 1, for virtual supply, virtual demand, import, and export transactions, assuming NYISO's other proposed changes to the credit requirements methodology are implemented; and

<u>Response</u>:

Please see the NYISO's response to Question 1 above. Table 1 above shows how the 97th and 98th percentile thresholds perform in the portfolio analysis, comparing the current credit design to the proposed design in the 2023 NYISO Filing.[52] The NYISO also analyzed the performance of a 99th percentile threshold applied to Virtual Supply and determined that the increase in credit support would have been excessive relative to the increase in coverage.[53] The NYISO did not analyze Virtual Demand portfolios at the 98th percentile, because in the Bid analysis, the 97th percentile resulted in a reasonable level of coverage for Virtual Demand Bids—90.2%, as compared with only 74% of Virtual Supply Bids based on a 97th percentile and 80% based on a 98th percentile threshold.[54] Moreover, the analysis of Virtual Demand portfolios in Table 1 above shows that the 97th percentile threshold covered 97.52% of payments due compared to 96.24% for Virtual Supply sub-portfolios with a 98% threshold.

Based on the analysis for External Transactions described above in response to Question 1, the NYISO determined that the coverage patterns for External Transactions are similar to what was observed in the Virtual Transactions analysis.

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[50] *See supra* at 7; Harvey Aff. at P 57.

[51] Harvey Aff. at P 43.

[52] *See supra* at 7.

[53] *Id.*

[54] NYISO Management Committee Presentation, *supra* note 20, at 35, 40; *see also* Harvey Aff. at P 55 ("Over all hours, zones, and years 2010 through 2021, Alternative 3 with a 98% threshold for Virtual Supply raises average coverage from just under 75% to just under 80% and reduces overall uncovered payments due by 19% over the eleven-year period.").

Question 3(ii):

> *(ii) a narrative explanation of the composition and time periods of each data source used to calculate the performance metrics in Question 3(i).*

Response:

The data used for the portfolio-level analysis consists of all cleared Virtual Demand and Virtual Supply Bids over the period May 2005 through December 2021, aggregated by bidder. The data used for the Virtual Bid-level analysis consists of all Virtual Bids at all locations, all zones, and external Proxy Generator Bus locations. The Bid-level analysis assumes that a Virtual Demand or Virtual Supply Bid would be submitted in each hour over the period at each biddable location.[55] The analysis of one- and two-year look-back periods covers May 2007 through December 2021, while comparisons to the five-year look-back period covers May 2010 through December 2021.[56]

These time periods were chosen based on two considerations. First, major changes were introduced to the NYISO Real-Time Market design in February 2005, including the introduction of reserve shortage pricing in the real-time dispatch.[57] There were a number of software implementation issues that required price corrections from February to March 2005.[58] As such, the NYISO has for many years based analyses of Virtual Transactions on the period since either April 1 or May 1 2005.[59] The NYISO has used this same database of Virtual Transactions positions for prior analyses. A two-year look-back period requires two years of data to calculate the credit requirement, hence the analysis assessing a two-year look-back period starts in May 2007.[60] A five-year look-back period requires five years of historical data, hence the analysis of the coverage associated with five-year look-back period begins in 2010.[61] Comparisons of one- and two-year look-back periods to the five-year look-back period are based on this same 2010 through 2021 timeframe.[62]

The Real-Time Market and Day-Ahead Market prices used in the analysis are based on the posted Real-Time Market and Day-Ahead Market zonal and Proxy Generator Bus (intertie) prices.[63]

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[55] *Id.* P 13.

[56] *Id.* P 9.

[57] *Id.* P 10.

[58] *Id.*

[59] *See id.* P 10 & n.6.

[60] *Id.* P 11.

[61] *Id.*

[62] *Id.*

[63] *Id.* P 14.

III. Effective Date

The NYISO understands that this response to the Notice constitutes an amendment to the 2023 NYISO Filing and that a new filing date will be established pursuant to *Duke Power Co.*, 57 FERC ¶ 61,215 (1991). Accordingly, the NYISO respectfully resubmits in Attachments IV and V hereto, the blacklined and clean versions, respectively, of the proposed tariff revisions that it originally submitted in Attachments I and II of the 2023 NYISO Filing. The tariff revisions set forth in Attachments IV and V have the same text as in the 2023 NYISO Filing but an amended proposed effective date of September 12, 2023, when the software changes necessary to implement the proposed changes are scheduled to be deployed.

The NYISO further requests that the Commission issue an order accepting all of the tariff revisions proposed in the 2023 NYISO Filing, as amended here, at the end of the standard sixty-day notice period under FPA section 205 (*i.e.*, August 4, 2023). Such timely action by the Commission will: (i) allow the NYISO to confidently proceed with developing and deploying the software changes necessary to implement the proposed enhancements to the credit requirements; and (ii) enable the NYISO to achieve the desired effective date for these proposed changes.

IV. Communications and Correspondence

All communications and service in this proceeding should be directed to:

Robert E. Fernandez, Executive Vice President, General Counsel & Chief Compliance Officer
Karen G. Gach, Deputy General Counsel
Raymond Stalter, Director, Regulatory Affairs
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*Person designated for receipt of service.

V. Service

A complete copy of this filing will be posted on the NYISO's website at www.nyiso.com. The NYISO will send an electronic link to this filing to the official representative of each of its customers, and each participant on its stakeholder committees. The NYISO will also send an electronic copy of this filing to the official representative of each party to this proceeding, the New York State Public Service Commission, and the New Jersey Board of Public Utilities.

VI. Conclusion

For the foregoing reasons, the NYISO respectfully requests that the Commission: (i) issue an order accepting the proposed revisions to the Services Tariff that are filed herewith at the end of the standard sixty-day notice period under FPA section 205 (*i.e.*, by August 4, 2023); and (ii) allow the proposed changes to become effective on September 12, 2023, when the software changes necessary to implement the proposed changes are scheduled to be deployed.

Respectfully submitted,

/s/ *Amie Jamieson*
Amie Jamieson, Senior Attorney/Registered In-House Counsel
New York Independent System Operator, Inc.

cc: Janel Burdick
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Jette Gebhart
Leanne Khammal
Jaime Knepper
Kurt Longo
David Morenoff
Douglas Roe
Eric Vandenberg

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. §385.2010.

Dated at Rensselaer, NY this 5th day of June 2023.

/s/ Elizabeth Rilling

Elizabeth Rilling
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