



**ASSESSMENT OF THE
BUYER-SIDE MITIGATION EXEMPTION TESTS FOR THE
EXPEDITED DELIVERABILITY STUDY 2020-02**

**POTOMAC
ECONOMICS**

Market Monitoring Unit
for the New York ISO

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EXECUTIVE SUMMARY

The NYISO administers buyer-side market power mitigation (“BSM”) measures in New York City (“Zone J”) and the G-J Locality to prevent capacity prices from being artificially suppressed below competitive levels by the subsidized entry of uneconomic resources.¹ The BSM measures address such entry by imposing an Offer Floor on resources that do not satisfy criteria that are described below. The Offer Floor deters uneconomic entry that would otherwise be intended to suppress capacity prices below competitive levels. To the extent that uneconomic resources are subsidized for other reasons, an Offer Floor may still be imposed to ensure that such entry does not suppress prices below competitive levels.

The NYISO evaluates each Examined Facility in a deliverability study (a Class Year Study, an Additional SDU Study, or an Expedited Deliverability Study) to determine whether it should be subject to Offer Floor mitigation. The NYISO’s Tariff requires the Market Monitoring Unit to prepare a report discussing factors affecting the mitigation, whether the determination was tariff-compliant, and if there were flaws in the NYISO approach, which must be posted concurrently with the results of any BSM determinations.²

Background on the NYISO’s Process for Issuing BSM Determinations

The Expedited Deliverability Study (“EDS”) is a study to determine the extent to which an existing or proposed facility satisfies the NYISO Deliverability Interconnection Standard at its requested CRIS level without the need for System Deliverability Upgrades. The NYISO’s BSM evaluation of the Examined Facilities is coordinated with its determination of Deliverable MW as part of the EDS Study. The EDS allows for a single decision period where each Examined Facility considers its Deliverable MW and its initial BSM determination (if applicable) before deciding whether to accept its Deliverable MW.

If a developer does not accept its Deliverable MW, the project does not receive CRIS and will be removed from the EDS. When a project leaves the study, the Deliverable MW amount for other projects may change, and the ICAP, Energy, and Ancillary Services price forecasts (which are inputs to the BSM determinations for other Examined Facilities) may be updated. Thus, the NYISO provides an updated BSM determination for each remaining Examined Facility upon completion of the study.

¹ Terms with initial capitalization not defined in this report have the meaning set forth in the NYISO’s Market Administration and Control Area Services Tariff (“MST” or “Tariff”), and if not defined therein, then in Open Access Transmission Tariff Attachment S.

² See MST Sections 23.4.5.7.6.8, 30.4.6.2.13, and 30.10.4.

Executive Summary

Examined Facilities are evaluated for a Competitive Entry Exemption (“CEE”), a Renewable Entry Exemption (“REE”), and/or under the Part A & B tests:

- *Competitive Entry Exemption* – This provision ensures that the BSM measures do not prevent a new unsubsidized resource from entering the market. An Examined Facility can request a CEE if it does not have a contract, agreement, arrangement, or other relationship with certain entities that could serve as a conduit for a subsidy.
- *Renewable Entry Exemption* – Resources that are exclusively powered by solar, wind, and Limited Control Run-of-River hydropower are eligible to request a REE. These are technologies that the NYISO determined to be weak instruments for exercising buyer-side market power because of their relatively low capacity value and high fixed costs.
- *Part A Test exemption* – This allows a new resource to sell capacity when its entry would not depress capacity prices below competitive levels. Thus, this allows a subsidized resource (that does not qualify for a Renewable Entry Exemption) to sell capacity as long as it does not raise the capacity surplus above moderate levels.
- *Part B Test exemption* – This allows a new economic resource to sell capacity even if it is subsidized or developed by a regulated utility or agency of New York State. A resource is deemed economic if the projected revenues it would receive from the wholesale market would exceed its levelized costs over its first three years of operation.

BSM Results for Examined Facilities in the Expedited Deliverability Study 2020-02

The NYISO evaluated and issued BSM determinations to four Examined Facilities as part of the Expedited Deliverability Study 2020-02 (“EDS20-02”) Study. One Examined Facility was determined to be exempt from the Offer Floor under the CEE provisions while two Examined Facilities were determined to be exempt under the Part B Test. Table 1 provides a description of each Examined Facility and the status of its BSM evaluation.

Table 1 – Summary of Examined Facilities in EDS20-02

Examined Facility	Summer CRIS MW	Zone	Type	Status
Bowline 1	16.3	G	ST/ Additional CRIS MW	Exempt under Part B
Bowline 2	7.6	G	ST/ Additional CRIS MW	Exempt under Part B
Cricket Valley Energy Center ("CVEC")	69.6	G	CC/ Additional CRIS MW	Exempt under CEE
Magruder Storage	20	G	ESR	Not Exempt

The remainder of this Executive Summary provides an overview of the BSM evaluations in the EDS20-02 Study.

Evaluation for Competitive Entry Exemption in EDS20-02

In the EDS20-02 Study, one Examined Facility, the Cricket Valley Energy Center (“CVEC”) Project, requested a CEE for 69.6 MW of Additional CRIS. The NYISO reviewed the project developer’s certifications along with planned or existing contracts with non-qualifying entities. The NYISO evaluated the submission for any non-qualifying contractual relationships, and concluded that the project was eligible for the CEE. Accordingly, it was determined to be exempt from an Offer Floor.

Evaluation under Part A and Part B Tests in EDS20-02

In the EDS20-02 Study, the NYISO provided BSM determinations for four Examined Facilities based on Part A and Part B tests.

Part A Test - In the EDS20-02 BSM evaluation, the NYISO’s forecasted capacity prices for the G-J Locality during the first year of the Mitigation Study Period (May 2024 to April 2025) were lower than the Default Net CONE (“DNC”), which is the price level above which an Examined Facility will be exempted under the Part A test.³ Thus, none of the Examined Facilities were determined to be exempt under the Part A test in the EDS20-02. The key driver of this result was the forecasted capacity margin, which was 31 percent (in Summer) of the G-J Locality UCAP requirement. This substantially exceeded the Part A threshold (i.e. the surplus level below which Examined Facilities would be exempt from an Offer Floor) of 10 percent.

Part B Test - In the EDS20-02 BSM evaluations, the Unit Net CONE (“UNC”) of each of the Bowline 1 and Bowline 2 Projects was lower than the forecasted capacity prices over the three-year Mitigation Study Period (May 2024 to April 2027). Hence, these projects were determined to be exempt under the Part B test. The UNC of the CVEC and Magruder Storage Projects were higher than the forecasted capacity prices. Hence, these projects were determined to not be exempt under the Part B test.

The key drivers of the outcome of the Part B test in the EDS20-02 evaluations were:

- The large projected capacity surplus in the G-J Locality (which resulted in a low price forecast over the MSP). This was largely due to a declining load forecast, a large amount of surplus generation capacity, and the assumed completion of the AC Transmission Projects, which are anticipated to reduce the forecasted Locational Capacity Requirements.
- The framework for estimating the UNC values (which resulted in low UNCs for two of the Examined Facilities). The UNCs of the Bowline 1 and 2 Projects were estimated

³ The purpose of the Part A test is to ensure that a resource will be determined to be exempt when its capacity will be needed to satisfy the capacity requirement for a particular Locality.

using only the incremental costs associated with the requested Additional CRIS MW. The UNC's of the CVEC and Magruder Storage Projects were estimated using the costs and revenues associated with development of a new resource.⁴ Hence, the Gross CONEs of the Bowline 1 and 2 Projects were significantly lower than that of the other two Examined Facilities, which resulted in the former two projects being exempted from an Offer Floor under the Part B test.

Overall, we find that the Part A and Part B tests in the EDS20-02 BSM evaluations were performed in accordance with the NYISO MST.

Conclusions and Recommended Enhancements

Ultimately, all three Examined Facilities that involved Additional CRIS MW were determined to be exempt from the Offer Floor. The CVEC Project received an exemption under the CEE and the Bowline 1 and Bowline 2 projects received exemptions under the Part B Test. The Magruder Storage project was determined not to be exempt from the Offer Floor. We conclude that the NYISO's BSM determinations in EDS20-02 were made in accordance with the requirements of the Tariff and based on reasonable assumptions.

As a part of our review, we have identified a number of issues that, if addressed, would improve the accuracy of the BSM evaluations. These relate to the Part A and Part B testing procedures, test assumptions regarding forecasted in-service capacity supply, entry dates of the Examined Facilities, and estimation of revenue offsets and costs.⁵

None of the issues we identified, by themselves or in combination, affected the determinations in the EDS20-02 BSM evaluations. However, it is important that the NYISO work with its stakeholders to address these issues in future evaluations, as they may have significant impacts on the results of future BSM evaluations.

⁴ Although the CVEC Project is already in service and requested Additional CRIS MW as part of the EDS20-02, its UNC in the EDS 2020-02 BSM study was determined based on the cost of the entire facility (instead of only the increased CRIS), in accordance with MST §23.4.5.7.6.

⁵ See section VIII.

I. INTRODUCTION AND SUMMARY

The NYISO’s Market Administration and Control Area Services Tariff (“MST” or “Tariff”) requires that the Market Monitoring Unit (“MMU”) prepare a report to be posted concurrently with the results of buyer-side market power mitigation (“BSM”) determinations.^{6,7}

In Expedited Deliverability Study 2020-02 (“EDS20-02”) Study, the NYISO conducted the Part A and Part B tests of the BSM evaluations for four Examined Facilities located in G-J Locality.⁸ Three of the four Examined Facilities requested Additional CRIS MW, which is the amount of capacity at an existing facility for which CRIS rights are requested. Of these, one Examined Facility was also evaluated for a Competitive Entry Exemption (“CEE”).⁹ The NYISO provided its BSM determinations to all four Examined Facilities. Three Examined Facilities were determined to be exempt from an Offer Floor pursuant to the provisions of either the Part B test, or the CEE provisions.

This report provides our review of the NYISO’s BSM evaluations, and it has been posted concurrently with the NYISO’s BSM determinations in the EDS20-02 Study.¹⁰ We find that the NYISO’s BSM determinations in the EDS20-02 BSM evaluation were made in accordance with the Tariff and based on reasonable assumptions.

Table 2 presents a brief overview of the Examined Facilities in the EDS20-02 BSM evaluation (or “EDS20-02 Projects”), and their status at the end of the study.

Table 2 – Summary of EDS20-02 Projects

Examined Facility	Summer CRIS MW	Zone	Type	Status
Bowline 1	16.3	G	ST/ Additional CRIS MW	Exempt under Part B
Bowline 2	7.6	G	ST/ Additional CRIS MW	Exempt under Part B
Cricket Valley Energy Center (“CVEC”)	69.6	G	CC/ Additional CRIS MW	Exempt under CEE
Magruder Storage	20	G	ESR	Not Exempt

⁶ See *Astoria Generating Company, L.P., et al. v. New York Independent System Operator, Inc.*, 139 FERC ¶ 61,244 (2012) at PP 130. Also see MST §23.4.5.7.6.8.

⁷ Terms not defined herein have the meaning set forth in the MST, and if not defined there, then as defined in the Open Access Transmission Tariff (“OATT”).

⁸ See MST §23.4.5.7.2.

⁹ See MST §23.4.5.7.9 for Tariff provisions for CEE.

¹⁰ The NYISO’s determinations in the EDS20-02 Study are available at the following [link](#).

This report discusses key results and assumptions of the EDS20-02 BSM evaluation. For each assumption, the report discusses how the outcome of the test was affected by the assumption, whether the assumption was in accordance with the MST, and whether the assumption was generally reasonable and consistent with the purposes of the BSM measures. In discussing the reasonableness of the particular assumptions, we identify potential concerns that may justify changes in NYISO procedures or in the BSM rules. A list of assumptions that may be improved for future BSM exemption tests is provided in Section VIII of this report. The following sections review key elements of the NYISO's BSM determinations:

- Section II discusses the NYISO's review of the Additional CRIS MW request from the Cricket Valley Energy Center ("CVEC") Project for a Competitive Entry Exemption.
- Section III discusses the Part A test in which the NYISO compares the forecasted ICAP price in the first year of the Mitigation Study Period ("MSP") to the Default Net CONE.
- Section IV discusses the results of the Part B test in which the NYISO compares the average forecasted ICAP price during the three-year MSP to the project's Unit Net CONE. Key inputs to the Part B test are discussed in sections V and VI.
- Section V evaluates the NYISO's estimates of the cost of new entry ("CONE") for each Examined Facility, which is used to calculate its Unit Net CONE.
- Section VI evaluates the estimated net revenues for each project from the NYISO's Energy and Ancillary Services markets. The estimated net revenues are also used to calculate the project's Unit Net CONE.
- Section VII discusses assumptions that affect both the Part A and Part B tests.
- Section VIII summarizes our overall conclusions and discusses issues that could be addressed in future BSM determinations.

II. COMPETITIVE ENTRY EXEMPTION EVALUATION

The Tariff provides for the NYISO to exempt from an Offer Floor Examined Facilities that meet certain Tariff criteria under the Competitive Entry Exemption (“CEE”) provisions.¹¹ Generally, the CEE provisions were put in place to exempt merchant projects that do not receive payments from New York State governmental entities or a Transmission Owner from buyer-side mitigation because the developers of such projects should have market incentives to enter based on their own expectations of market conditions. MST §23.4.5.7.9 specifies the requirements that a project developer needs to fulfill in order to establish that the project is not supported by payments or other subsidies (either direct or indirect) through contracts with non-qualifying entities.

In the EDS20-02 Study, the Cricket Valley Energy Center (“CVEC”) project requested a CEE for 69.6MW of Additional CRIS.¹² The project developers executed Certification and Acknowledgement forms and also submitted a schedule listing planned or existing contracts with non-qualifying entities and a number of such documents, along with information necessary to calculate a Unit Net CONE (“UNC”) for the project. The CVEC Project developer’s submission to the NYISO included non-disclosure agreements, interconnection studies, fuel service and transport agreements, and financing agreements among other documentation related to the development and permitting of the facility.

The NYISO reviewed the developer submissions and, where applicable, requested additional information to determine whether the developer had entered or planned to enter into non-qualifying contracts. The NYISO determined the Additional CRIS MW from the CVEC Project to be exempt from an Offer Floor under the CEE provisions. We find that the NYISO determination was made in accordance with the MST.

¹¹ See MST § 23.4.5.7.9.

¹² See NYISO [notice](#).

III. PART A TEST RESULTS

The Part A test compares a forecast of capacity prices for the first year of the MSP to the Default Net CONE ("DNC"), which is 75 percent of Mitigation Net CONE.¹³ The purpose of the Part A test is to ensure that a resource is not mitigated when its capacity will be needed to satisfy the capacity requirement for a particular Locality.

In its EDS20-02 BSM evaluation, the NYISO conducted the Part A test for four Examined Facilities, all of which are located in the G-J Locality.¹⁴ The NYISO tested these projects sequentially according to their presumptive Offer Floors from lowest to highest.¹⁵ A unit is exempt in the Part A test if the price forecast for the first year of the MSP is higher than the Default Net CONE. If a project receives an exemption, it is included in the test for the subsequent project. Otherwise, it is excluded from the ICAP forecast for the subsequent project in the sequence.

The total summer UCAP supply, including the Examined Facilities, was 131 percent of the capacity requirements in the G-J Locality, where the Part A threshold (i.e. the surplus level below which Examined Facilities would be exempt from an Offer Floor) was 110 percent. Therefore, Part A ICAP price forecast for the G-J Locality was lower than the DNC. Accordingly, none of the Examined Facilities were determined to be exempt from an Offer Floor under the Part A test.

We find that the Part A tests in the EDS20-02 BSM evaluations were performed using reasonable assumptions that were in accordance with the NYISO MST. Sub-section A evaluates the assumptions used to forecast capacity prices and to perform the BSM evaluation for each Examined Facility. The conclusion of this section summarizes our evaluations of the Part A test in EDS20-02 Study.

A. Implications of Factors Identified in Section VII

This sub-section discusses how key factors identified in Section VII affected the Part A test.

1. Starting Capability Period of Summer 2024

In accordance with the Tariff, the EDS20-02 Projects were assumed to enter in Summer 2024. The EDS20-02 Projects included multiple technologies and project circumstances, and it is

¹³ See *BSM Narrative and Numerical Example*, Section 2.

¹⁴ The four Examined Facilities evaluated under the Part A test included one the project that requested a CEE.

¹⁵ For each Examined Facility, the Part A test is conducted after the Part B test.

unrealistic to assume that all projects would begin operations on the same timeline.¹⁶ For example, three of the four EDS20-02 Projects are already in service (the Bowline 1, Bowline 2 and CVEC Projects).

The use of Summer 2024 as the Starting Capability Period may have lowered the price forecast used for the Part A test in the EDS20-02 Study. Use of this date required the NYISO to model the AC Transmission Projects in service, which significantly reduced the Locational Capacity Requirement (“LCR”) in the G-J Locality. However, as noted below, the use of a LCR that is consistent with the prevailing level (87.6 percent) would not have changed the outcome of the Part A test. Therefore, assuming an earlier start date for Examined Facilities would not, by itself, have altered the results of the Part A test in EDS20-02.

2. Capacity Assumed to be In-Service During the Mitigation Study Period

As discussed in VII.B, the NYISO made several assumptions regarding the set of resources that will be in-service before and during the MSP for the EDS20-02 BSM evaluations. In particular, the NYISO included in its forecast as price-takers all projects that were determined to be exempt from BSM and accepted their Project Cost Allocation (“PCA”) in the recent completed CY19 and CY19 ASDU evaluations. These projects totaled 461 MW of summer ICAP in Zones G-J. Given the large difference between the Part A threshold and the surplus in the first year of the MSP, exclusion of any or all of these projects would not have changed the outcome of the Part A test in EDS20-02.

The NYISO also modeled as out-of-service generators that have indicated they intend to retire in order to comply with the NYSDEC “Peaker Rule” emissions limitations. Inclusion of these projects would have further reduced the ICAP price forecast in the G-J Locality, and therefore would not have changed the outcome of the Part A test.

3. Estimating Locational Capacity Requirements for the Mitigation Study Period

In its EDS20-02 BSM evaluation, the NYISO forecasted the Locational Minimum Installed Capacity Requirement (“LCRs”) for the first year of the MSP (2024/2025) for the G-J Locality as 79.5 percent. The forecasted LCRs have a significant impact on the Part A test price forecast. For instance, a one percentage point increase in the G-J Locality LCR could result in up to \$13/kW-year of price increase in the first year of the MSP.¹⁷

¹⁶ See subsection VII.A for additional discussion of this issue.

¹⁷ This assumes that the G-J Locality auction clears on the demand curve in the G-J Locality. To the extent that the price in the G-J Locality is determined by the NYCA demand curve and/ or the supply of capacity increases (e.g. increase in imports/ UDRs, return of mothballed units) in response to a price increase, the impact of the LCR on the prices could be smaller.

As discussed in Section VII.D, the NYISO determined the LCRs for the MSP using its Alternative LCR Methodology, resource mix assumptions developed for the ICAP forecast, and topology changes consistent with the study period (including the AC Transmission projects and in-service status of Con Edison series reactors). These changes resulted in a projected G-J Locality LCR for 2024/25 that is significantly lower than the prevailing level in 2021/2022 (87.6 percent). The use of the current (i.e. 2021/22 Capability Year) LCRs in the Part A test of the EDS20-02 Study would not have changed the outcome of the test.

B. Conclusions

In the EDS20-02 Study, the forecasted ICAP prices for the first year of the MSP were lower than the DNC in the G-J Locality. Hence, no Examined Facilities in the G-J were determined to be exempt under the Part A test. Overall, we find that the Part A tests in the EDS20-02 evaluations were performed in accordance with the NYISO MST.

We identified one issue related to the starting capability period assumption that affected the Part A ICAP price forecast in the EDS20-02 Study, although this issue did not affect the outcome of the Part A test. We recommend the NYISO address this issue in its future evaluations.

IV. PART B TEST RESULTS

An exemption is granted in the Part B test if the average capacity price forecast over the three-year MSP is higher than the Unit Net CONE (“UNC”) of the Examined Facility.¹⁸ The Unit Net CONE is equal to the annualized levelized CONE of the project minus the net revenue earned from selling Energy and Ancillary Services.¹⁹ The purpose of the Part B test is to ensure that a project is not mitigated when it would be economic for the project to move forward.

In the EDS20-02 BSM evaluation, the NYISO conducted the Part B test for four Examined Facilities. The NYISO’s ordering of Examined Facilities for the Part B test included the facilities that were eligible for CEE.²⁰ Examined Facilities were ordered according to their presumptive Offer Floors and tested sequentially. If the presumptive Offer Floor of an Examined Facility was lower than the ICAP price forecast, it was included in the test for the subsequent project. Otherwise, the Examined Facility was excluded from the ICAP forecast for the subsequent project in the sequence.

The UNCs for the Bowline 1 and Bowline 2 Projects were lower than the corresponding capacity price forecast over the MSP, hence these projects were determined to be exempt from an Offer Floor under the Part B test. The UNCs for the CVEC and the Magruder Storage Projects were higher than the corresponding capacity price forecast over the MSP, hence both the Projects were not exempt under the Part B test.

We find that the Part B test in the EDS20-02 BSM evaluation was performed using reasonable assumptions that were in accordance with the NYISO MST. Subsection A evaluates the assumptions used to forecast capacity prices and to perform the Part B test of the EDS20-02 BSM evaluation. The conclusion of this section summarizes our evaluations of the Part B test in EDS20-02 Study.

A. Implications of Factors Discussed in Sections V, VI and VII

This sub-section discusses how several key factors identified in other sections of this report affected the outcome of the Part B test in the EDS20-02 BSM evaluation. Sections I, VI and VII discuss in detail other assumptions that were used in the Part B test.

¹⁸ See BSM Numerical Example, Section 3.

¹⁹ The assumptions for the estimated annual levelized CONE calculations for the Examined Facilities are evaluated in Section V, while the reasonably anticipated net revenue assumptions are evaluated in Section VI. Other relevant forecasting assumptions are discussed in Section VII.

²⁰ The four Examined Facilities evaluated under the Part B test included one the project that requested a CEE.

1. Starting Capability Period of Summer 2024

In accordance with the Tariff, the EDS20-02 Projects were assumed to enter in Summer 2024.²¹ The EDS20-02 Projects included multiple technologies and project circumstances, and it is unrealistic to assume that all projects would begin operations on the same timeline.²² For example, three of the four EDS20-02 Projects requested Additional CRIS MW at generators that are already in service (the Bowline 1, Bowline 2 and CVEC projects).

We discussed the impact of the Summer 2024 start date assumption on the net revenues of the EDS20-02 Projects in section VI.A. In addition, as discussed in section I.A, the forecasted ICAP prices over the MSP in G-J Locality decreased significantly due to the modeling of the AC Transmission Projects as in service, which significantly reduced the LCR in the G-J Locality. Hence, assuming a project will be in service later than its actual start date could lead to mitigation of an otherwise economic project. Nonetheless, the Starting Capability Period assumption by itself did not impact the outcome of the EDS20-02 evaluations.

2. Estimating Locational Capacity Requirements for the Mitigation Study Period

The NYISO determined its LCR forecast for the MSP using assumptions described in section VII.D. The forecasted LCRs can have a significant impact on the Part B ICAP price forecast. For instance, a one percentage point increase in the G-J Locality LCR could result in up to \$13/kW-year of average price increase over the MSP.²³

In its EDS20-02 BSM evaluation, the NYISO forecasted average LCRs for the G-J Locality for the three years of the MSP as 79.6 percent, which is significantly lower than the LCR for 2021/2022 (87.6 percent).²⁴ However, the outcome of the Part B test for none of EDS20-02 Projects would have been altered by increasing the LCRs to the 2021/22 levels.²⁵

²¹ The assumption regarding the Starting Capability Period is discussed in further detail in subsection VII.A.

²² See subsection VII.A for additional discussion of this issue.

²³ This assumes that the G-J Locality auction clears on the demand curve in the G-J Locality. To the extent that the price in the G-J Locality is determined by the NYCA demand curve and/ or the supply of capacity increases (e.g. increase in imports/ UDRs, return of mothballed units) in response to a price increase, the impact of the LCR on the prices could be smaller.

²⁴ See section 2.2 of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References* document.

²⁵ The forecasted ICAP prices are dependent on the Locality's UCAP requirement, which is determined by the LCR and the ICAP/UCAP Translation Factor. As discussed in section VII.E, the UCAP requirement for the G-J Locality during the MSP decreased significantly relative to the prevailing UCAP requirement as a result of lower LCRs as well as higher ICAP/UCAP Translation Factor.

3. Issues Affecting Net Revenues of the Magruder Storage Project

As described in subsection VI.C.1, the NYISO estimated the net revenues for the Magruder Storage Project in its EDS20-02 evaluations using an optimization model that included a characterization of various physical costs/ constraints related to the operation of the resource.²⁶ However, the dispatch model likely overestimated the net revenues of battery storage units for the following reasons:

- The dispatch model assumed perfect foresight of prices for the unit operator.
- The NYISO's model implicitly allowed for interval-level offers/ bids, whereas the unit operators can only submit hourly offers/ bids in accordance with current market rules.

Modifying the NYISO's model to address the above shortcomings would not have affected the Part B determinations for the Magruder Storage Project.

B. Conclusions

In the EDS20-02 BSM evaluations, the UNC's of the Bowline 1 and Bowline 2 Projects were lower than the average capacity price forecast over the three-year MSP. Accordingly, these Examined Facilities were determined to be exempt from the Offer Floor under the Part B test. The UNC's of the Magruder Storage and CVEC Projects were higher than the average forecasted capacity prices over the MSP, and they were determined to be not exempt from the Offer Floor under the Part B test.

The key drivers of the outcome of the Part B test in the EDS20-02 evaluations were (a) the large projected capacity surplus in the G-J Locality (which resulted in a low price forecast over the MSP), and (b) the framework for estimating the UNC values (which resulted in low UNC's for some of the Examined Facilities).

- The UNC's of the Bowline 1 and 2 Projects were estimated using only the incremental costs associated with the requested Additional CRIS MW.
- The UNC's of the CVEC and Magruder Storage projects were estimated using the costs and revenues associated with development of a new resource.²⁷

Hence, the Gross CONEs of the Bowline 1 and 2 Projects were significantly lower than that of the other two Examined Facilities, which resulted in the former two projects being exempted from the Offer Floor under the Part B test.

²⁶ The constraints modeled included a limit on the total number of charge/ discharge cycles.

²⁷ See Section V.B

Part B Test Results

Overall, we find that the Part B test in the EDS20-02 BSM evaluation was performed using reasonable assumptions in accordance with the NYISO MST. We recommend the NYISO address the following issues in its future evaluations:

- Starting Capability Period is unrealistic for most Examined Facilities
- Modify the Energy Storage Resource (“ESR”) dispatch model to: (a) reflect the ability of the ESR to submit only hourly offers, (b) account for the operator’s limited foresight of future prices when offering the unit

None of the above issues affected the determinations in the EDS20-02 BSM evaluations.

V. PART B TEST INPUT – COST OF NEW ENTRY

The BSM exemption test requires the NYISO to estimate the annual levelized CONE of each Examined Facility for use as an input to the Part B test. The developers of the EDS20-02 Projects provided cost information which was evaluated by the NYISO with the assistance of engineering consultants. In some cases, the NYISO substituted a developer's identified cost estimates with one that the NYISO determined was more reasonable. This section evaluates key assumptions used in the CONE estimates.

A. Assumptions Affecting the CONE of Multiple EDS20-02 Projects

1. Cost of Capital

The NYISO used the cost of capital estimates submitted by the EDS20-02 Projects' developers when they were well-substantiated or reasonably consistent with the risk profile of the projects. To the extent that firm-specific or project-specific information was unavailable or unsuitable for calculating the WACC for that Examined Facility, the NYISO used values developed in the 2020 ICAP Demand Curve Reset study.

We find the cost of capital parameters used by the NYISO in the EDS20-02 BSM evaluations to be reasonable.

2. Amortization period

The estimated CONE of each EDS20-02 Project was amortized over the project's economic life, which is the period over which an owner seeks to recover the project costs along with a return on investment. The assumed economic life affects the Gross CONE in a significant manner. For instance, lowering the life of the demand curve unit from 20 years to 15 years would increase the Net CONE by \$20/kW-year (i.e. 19 percent).

For the EDS20-02 BSM evaluations, the NYISO assumed a 20-year amortization period for all new generation and energy storage Examined Facilities. This is consistent with the currently effective assumptions underlying the ICAP Demand Curves and past BSM evaluations.²⁸ For the Bowline 1 and 2 Projects, the NYISO used a reduced amortization period to reflect the shorter economic life of the existing facility (compared to a new facility) given the expected market conditions. Ultimately, the BSM determination for these Examined Facilities was not sensitive to a wide range of alternative values of this input.

²⁸ See section VI.B of our report on the Class Year 2019 BSM outcomes, available [here](#).

3. Contingency

The NYISO, in consultation with its engineering consultants, evaluated the level of uncertainty in the submitted cost data relative to the contingency values submitted by the project developers. Consistent with its approach in CY19 BSM evaluations, in cases where there was significant uncertainty around the submitted cost data, the NYISO utilized a contingency value (from its consultants or from the developers) that is higher than the input to the prevailing ICAP Demand Curves calculations. In cases where the full project costs have already been incurred, the NYISO relied on actual cost data in calculating the CONE and did not assume an additional contingency.

B. Assumptions Affecting the CONE of Individual EDS20-02 Projects

1. CONE of the CVEC Project

In the EDS20-02 Study, the CVEC Project requested CRIS in the amount of 69.6 MW in addition to the 1,020 MW (Summer CRIS) that the facility received under the Competitive Entry Exemption in Class Year 2017. In accordance with its Tariff, the NYISO estimated the CONE of the Examined Facility based on the cost and capability of the entire facility (instead of only the costs associated with the Additional CRIS MW requested).²⁹

In estimating the CONE of the CVEC Project, the NYISO considered cost estimates submitted by the project developer in conjunction with the actual costs incurred in place of estimates for certain items, including for interconnection costs and interest during construction expenditures.

2. CONE of the Bowline 1 and Bowline 2 Projects

In the EDS20-02 BSM evaluation, the NYISO considered the requested Additional CRIS MW at the two existing units.³⁰ Since the total CRIS of the Bowline Projects includes pre-existing capacity which was not subject to a Unit Net CONE determination, the CONE for the Additional CRIS MW associated with the Bowline 1 and 2 Projects was estimated based on the incremental costs and revenues associated with the Additional CRIS MW, in accordance with MST §23.4.5.7.6.1.

In estimating the CONE of the Bowline Projects, the NYISO considered the data submitted by the project owner on historic and projected costs for the facilities, and compared them to benchmarks based on OEM-recommended maintenance. The NYISO allocated capital expenditure and operating costs for the full plant to the requested Additional CRIS MW on a pro rata basis.

²⁹ See MST §23.4.5.7.6.1 for the criteria used to determine the framework for estimating the CONE of Additional CRIS MW.

³⁰ Bowline 1 and Bowline 2 are existing steam turbine units located in Zone G.

3. CONE of the Magruder Storage Project

The NYISO evaluated the developer's submitted capital and operating costs for the facility based on cost benchmarks derived from the most recent Demand Curve Reset study and other estimates developed by its consultants as part of recent BSM evaluations. If the submitted costs were comparable to or exceeded benchmark values, the NYISO utilized the submitted values. Otherwise, the NYISO substituted values based on its cost benchmarks.

C. Conclusion – Cost of New Entry

We reviewed detailed information on the NYISO's estimates of the annual levelized CONE values for the EDS20-02 Projects. We find that the NYISO's estimates were reasonable and made in accordance with the Tariff.

VI. PART B TEST INPUT – NET REVENUE

The forecasted net Energy and Ancillary Services revenue is a key component of the Part B test, since a project developer expects to recoup a large share of its investment from future energy and ancillary services revenues.³¹ Estimating the net revenue of a new project is a complex endeavor, requiring the use of models to estimate future LBMPs and reserve prices at which the new facility would sell its output, and forecast when the Examined Facility will be scheduled.

We reviewed the assumptions used by the NYISO to estimate the net revenues for the EDS20-02 Projects to determine whether they were reasonable and consistent with the Tariff. This section is divided into the following sub-sections:

- Implications of key assumptions described in Section VII
- LBMP and Ancillary Services Price forecasts – This component of the net revenue model forecasts market clearing prices where the Examined Facility would sell electricity.
- Scheduling models – This forecasts how the Examined Facility will be scheduled based on the forecasted LBMPs, the operating parameters (e.g. variable costs, heat rate) of the Examined Facility, and other factors that affect scheduling.
- The conclusion discusses the overall results of the net revenue evaluation.

A. Implications of Assumptions Discussed in Section VII

This sub-section discusses how factors identified in Section VII affected the net revenue estimates for the EDS20-02 Projects.

1. Starting Capability Period of Summer 2024

The Starting Capability Period is important because the assumed timing of entry affects the LBMP and gas futures prices, which are key inputs to calculating net revenues.³² Under the current Tariff, all EDS20-02 Projects are assumed to enter in Summer 2024, although it would be more reasonable to assume that some existing and/ or short lead-time projects would enter much earlier.³³ If a more realistic in-service date was assumed for the existing projects, their LBMP price forecast is likely to have been higher.³⁴ Hence, all else being equal, using a later in-service likely resulted in lower forecasted net revenues and higher UNC values for projects that are

³¹ Net revenues are an input to the Unit Net CONE. See *BSM Numerical Example*, Section 3.2.

³² The assumption regarding the Starting Capability Period is discussed in further detail in Sub-section VII.A.

³³ For example, three of the four EDS20-02 Projects represent increased CRIS for generators that are already in service (the Bowline 1, Bowline 2 and Cricket Valley projects).

³⁴ For instance, on August 4, 2021, the Zone G day-ahead LMP futures price for the 2022 annual strip was three percent higher than the price for the 2024 annual strip.

already in-service. Nonetheless, this assumption had no impact on the EDS20-02 BSM determinations.

B. LBMP and Ancillary Services Price Forecasts

The subsection discusses the NYISO's methodology and its assumptions for projecting the energy and ancillary services prices that were used to estimate the net revenues for the EDS20-02 Projects.

1. LBMP Forecast

For the EDS20-02 BSM evaluation, the NYISO utilized monthly power forward curves to develop LBMPs for the MSP and the Capability Years 2022/23 and 2023/24.³⁵ The NYISO developed the hourly day-ahead LBMP forecast for each zone by adjusting the historical year LBMPs using the ratio of monthly forward prices and the observed monthly average prices in the historical year.^{36, 37}

The NYISO's approach to estimating LBMPs differed from its previous BSM evaluations, where it utilized a combination of econometric and GE-MAPS models. A similar approach in EDS-20-02 would have entailed updating the models used for the CY19 BSM evaluation to account for changes in a number of key parameters (e.g. resource mix, loads, gas futures). Given the complexity of calibrating and running these models in the time available for the EDS Study, the NYISO relied on the forward prices. This approach is reasonable for the EDS20-02 BSM evaluation as the Examined Facilities are all relatively small, and a majority are already operational. Hence, entry of these projects is unlikely to affect the prices received by them.

Nonetheless, to the extent that the NYISO relies on a similar approach for future EDS BSM evaluations, we recommend that it consider the following changes:

- Use the average of forward prices over a longer duration of trading days (e.g. 60 days) instead of using forward prices from a specific day
- Use historical on-peak and off-peak monthly averages (rather than only the monthly price) to shape the futures prices

³⁵ The NYISO used the forecasted or historical (as available at the time of analysis) LBMPs for Capability Years 2020/21 through 2024/25 to determine the net energy and ancillary services revenue for the demand curve unit at the tariff defined Level of Excess conditions. The projected net revenues were then used to forecast the ICAP reference points for the years before and during the MSP.

³⁶ The NYISO used 2017 as the historical year to develop LBMPs for 2024, 2018 historical year to develop LBMPs for 2025, and so on.

³⁷ For developing the real-time LBMPs for the future years, the NYISO used the hourly difference in the historical real-time and day-ahead prices and applied to the hourly day-ahead futures prices.

For the EDS20-02 BSM evaluations, the NYISO used gas futures prices to forecast the gas prices, and the net revenues for the Examined Facilities and the Demand Curve unit. The forecasted net revenues for projects in Zone G were based on gas prices at Iroquois Zone 2.

2. Ancillary Services Prices Forecast

The forecasted prices of all reserve products for the MSP were based on the historical prices from the analogous period, consistent with the approach the NYISO used in its prior evaluations.³⁸

C. Scheduling Models

The following subsections discuss the scheduling models the NYISO used for estimating the net revenues of the EDS20-02 Projects.

1. Energy Storage Scheduling Model

The NYISO modeled the operation of a ESR as an optimization problem with the objective of maximizing profit from the sale of energy and reserves over all the intervals in the MSP. The NYISO's ESR dispatch modeling methodology is the same as the one used in its CY19, and CY19 ASDU BSM evaluations.³⁹ The key assumptions of the NYISO's methodology are:

- The ESR will be committed in the day-ahead market for selling 10-minute spinning reserves in all hours. The resource can buy-out of its day-ahead commitment, and discharge/ charge in each interval in real-time.
- The resource will be able to modify its offer for every interval in the NYISO's real-time market.
- The number of charge/ discharge cycles a resource can go through is limited to an average (over the MSP) of one cycle per day.
- The charging cost in the model includes a cost adder, calculated as the product of the unit's State of Charge ("SOC") and a constant value, to prevent the SOC from deviating significantly from a preestablished target (50 percent). The NYISO estimated this adder as the value that produced an average SOC of 50% over the MSP.
- The unit-specific round-trip efficiency of the ESR is applied when the unit is charging.
- The ESR incurs costs associated with auxiliary station load (unit-specific) and rate schedule 1 costs for injections (0.30 \$/MWh) and withdrawals (0.78 \$/MWh).

We identify two factors that are likely to result in the ESR dispatch model overestimating the unit's net revenues:

³⁸ The reserve prices for 2024 were kept the same as prices in 2017, prices for 2025 were kept same as prices in 2018, and so on.

³⁹ See Section VII.D.I on page 44 of the CY19 MMU Report, available at: [link](#)

- Under the current rules, all resources can only submit hourly offers. Therefore, allowing the unit operator to place interval-level offers/bids would enable unrealistically high net revenues for the unit.
- The model assumes perfect foresight of future prices for the unit operator. Hence, the resulting net revenues are likely to be overestimated.⁴⁰

Neither of the above issues affected the determination of the Magruder Storage Project. Nonetheless, they could result in an unreasonably low UNC estimates in future evaluations. Accordingly, we recommend the NYISO modify its ESR dispatch model to address these issues.

2. CVEC Project Scheduling Model

The NYISO estimated the net revenues of the CVEC Project using the combined cycle scheduling model its consultants developed as part of the 2020 ICAP Demand Curve Reset study.⁴¹ The scheduling model determines the optimal set of hours for running the unit each day based on DAM and RT LBMPs and Ancillary Services prices, considering various costs (including fuel costs based on gas and oil prices, start-up costs, balancing charges, emissions allowance costs) and constraints on operation of the unit (e.g. start time, run hour limits).

3. Bowline Scheduling Model

The NYISO estimated the net revenues of the Bowline 1 and Bowline 2 Projects using a steam turbine scheduling model for determining the economic dispatch and net revenues for each unit. The following are the key aspects of the methodology the NYISO used for estimating net revenues of the Bowline Projects:

- The NYISO's model considers forecasted DAM LBMP prices, operating costs including fuel, variable O&M, emissions allowances and startup costs, as well as other unit parameters including heat rates and minimum runtimes.
- The unit is assumed to operate in hours when the projected hourly day-ahead LBMP exceeds its variable operating costs, consisting of fuel and emissions allowances multiplied by the unit's heat rate, plus a variable O&M cost.
- The unit is assumed to operate only if profitable over a continuous block of hours equal to or greater than its minimum runtime. Startup costs are subtracted from net revenue for each period in which it is economic for the plant to initiate operating.

⁴⁰ The cost adder that is applied to the SOC could partially limit the increase in net revenues due to the perfect foresight assumption. However, the extent to which the assumed cost adder offsets the increase in net revenues due to perfect foresight is unclear.

⁴¹ The assumptions and methodology for the Demand Curve scheduling models are described in *Independent Consultant Study to Establish New York ICAP Demand Curve Parameters for the 2021/2022 through 2024/2025 Capability Years – Final Report*, dated September 9, 2020.

- Since the Examined Facilities represent incremental CRIS for a plant that is already in service, the NYISO calibrated its scheduling model using data on historical operations on the facility when developing the model.

D. Conclusion

Overall, we find that the NYISO's methodologies for estimating the net revenues were reasonable and in compliance with its Tariff.⁴²

⁴² None of the recommendations that we discuss in subsection A and subsection B, if implemented, would have impacted the determinations in EDS20-02 BSM evaluations.

VII. ASSUMPTIONS AFFECTING PART A AND PART B TESTS

A. Starting Capability Period of Summer 2024

The Starting Capability Period (“SCP”) is the Capability Period in which the Examined Facilities are assumed to begin operating and offering capacity for the purposes of the BSM evaluations. As the EDS20-02 evaluations were conducted when the Class Year 2021 (“CY21”) was still ongoing, the Tariff required the NYISO to assume that all Examined Facilities participating in EDS20-02 will be in service three years after the start of the CY21, i.e., May 2024.⁴³

The three-year rule was implemented to increase transparency and the certainty for developers and market participants regarding the assumptions used in the BSM evaluations and to avoid gaming of the timing of a project’s identification of its commercial operation date (“COD”). However, this approach often results in a misalignment of the SCP with the likely CODs of Examined Facilities in two ways:

- First, the COD of an Examined Facility depends on, among other factors, the underlying technology and its timeline for securing the required permits. As a result, assuming that all Examined Facilities will begin operations three years from the calendar year of the Class Year is likely to be incorrect for a number of Examined Facilities.
- Second, the tariff provision for determining the Starting Capability Period is tied to the start of the Class Year and does not account for the time required to perform the deliverability studies. Therefore, in cases where the developer’s decision to move forward with the project is contingent on the PCA and/or the determination, the SCP is much earlier than the likely commercial operation date.

The SCP is important because the timing of entry affects a number of inputs to the Part A and Part B tests, including the load forecasts, LCRs, units assumed to be in service for the BSM evaluations, capital costs, energy revenues and any applicable opportunity costs.⁴⁴ Furthermore, if the SCP is not aligned with the CODs of Examined Facilities, it might disadvantage Examined Facilities that are likely to be operational earlier than other projects.⁴⁵ Consequently, a fixed SCP could produce unreasonable determinations when actual CODs are misaligned with the assumed COD.

⁴³ See MST §23.2.1 for Starting Capability Period definition.

⁴⁴ We discuss the effects of each of these inputs on the Part A and Part B tests in the EDS20-02 BSM evaluations in sub-sections I.A.1, IV.A.1, and VI.A.1. Previous MMU BSM Reports have identified additional problems with the Starting Capability Period assumption.

⁴⁵ For instance, assuming that a new project with a long lead-time will begin operating at the same time as existing and/ or short lead-time projects may result in an unrealistically low capacity price forecast if it includes the new long lead-time project.

Hence, we recommend the NYISO modify its Tariff provisions related to the SCP to improve alignment with the likely CODs of the Examined Facilities. A potential alternative to the three-year rule could be to assume a COD that is based on the underlying technology of the Examined Facility.⁴⁶ Such a technology-specific start date rule could provide that the date be adjusted as needed to reflect an Examined Facility’s progress in meeting its permitting milestones and the timing of conducting the deliverability studies.⁴⁷

B. Capacity Assumed to be In-service During the Mitigation Study Period

The BSM exemption test requires the NYISO to project capacity prices as much as six years into the future. The resources that are assumed to be in service during the MSP are an important driver of the projected capacity prices. Over-estimating the amount of in-service capacity increases the likelihood of mitigating an economic project, while under-estimating the amount of in-service capacity may lead to under-mitigation. The capacity price forecast is sensitive to the amount of capacity that is assumed to be in service.

In this sub-section, we discuss the treatment of several categories of resources in the NYISO’s ICAP price forecasts for EDS20-02 Projects. We also identify areas where the Tariff or the current procedures for determining the in-service capacity should be modified.

1. Additional Units and Excluded Units

The NYISO included most facilities classified as Existing Units in the 2021 Gold Book.⁴⁸ This sub-section discusses the assumptions regarding inclusion of other categories of generation (“Additional Units”), and exclusion of certain existing facilities (“Excluded Units”) in the NYISO’s capacity price forecasts for the EDS20-02 BSM evaluations.⁴⁹

Additional Units – These comprise resources that are in a Mothball Outage or an ICAP Ineligible Forced Outage (“IIFO”) or resources that have recently retired. These resources currently

⁴⁶ For instance, the Energy Information Administration in its NEMS model assumes a lead time that varies as follows: less than a year (for ESRs), two years (for Combustion Turbine and Solar PV facilities), and four years (for Biomass, Coal and Offshore wind facilities) for most of the generation technologies.

⁴⁷ The NYISO had proposed Tariff revisions for the Part A test that would have, in part, addressed the misalignment of the SCP with the likely COD. See NYISO’s April 30, 2020 filing in ER20-1718-001. However, the Commission rejected the NYISO’s filing. The NYISO filed a Petition for Review of the Commission’s order in the United States Court of Appeals for the District of Columbia Circuit on December 31, 2020.

⁴⁸ See Table III-2 of the 2021 Gold Book. These resources possess CRIS rights, and are currently operating or may be in a Forced Outage or Inactive Reserve status, and are referred to as “Existing Units” (see MST §23.4.5.7.15.4).

⁴⁹ See Section 3.2.1 of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References* document.

possess CRIS rights, but are not operating and retain the ability to return to service during the MSP. In accordance with its Tariff, the NYISO excluded resources that were in an IIFO. The NYISO included any resources that were determined to have a positive net present value in case they returned to service.

Excluded Units – In the EDS20-02 BSM evaluations, the NYISO reviewed publicly available information demonstrating with reasonable certainty that some of the units currently operating are likely to retire before or during the MSP.

- The NYISO also considered information from the compliance plans of generators affected by the Peaker Rule. The Peaker Rule limits NOx emissions rates of simple cycle units beginning in May 2023, with stricter limits beginning in May 2025. Units whose owners indicated that they intend to retire or permanently cease operation to comply with the May 2023 and May 2025 limits were excluded from the first year and second year of the MSP, respectively. A subset of the affected unit owners indicated that some of the resources will not operate during the ozone season (May through September), but will continue operating during the other months of the year. Accordingly, the NYISO excluded these units from the ICAP supply for the months May through September.
- The NYISO excluded the capacity from the Indian Point unit 3 for all the years of the MSP.⁵⁰

We find that the NYISO’s treatment of Additional Units and Excluded Units to be compliant with its Tariff.

2. Existing Units at Risk of Retiring or Mothballing

The NYISO, in accordance with its Tariff, included all Existing Units in its price forecasts.⁵¹ However, several capacity suppliers that are currently operating may choose to mothball or retire if capacity prices drop to levels that are insufficient to cover their fixed operating costs. Therefore, it is unrealistic to assume that all Existing Units will continue to operate during the MSP regardless of how low the forecasted prices are. However, the NYISO’s current Tariff does not allow it to consider the economic circumstances of the resources while developing the price forecasts. Although this issue did not affect the ultimate outcome of the EDS20-02 BSM evaluations, unrealistically low price forecasts could act as a barrier to new entry in future BSM evaluations. Therefore, we recommend the NYISO work with its stakeholders to develop reasonable criteria for treatment of Existing Units that are at risk of retiring or mothballing.

⁵⁰ Indian Point unit 3 had retired in April, 2021, but was included as an existing facility in the 2021 Gold Book.

⁵¹ See MST §23.4.5.7.15.4.

3. Prior Class Year Projects in the Interconnection Queue

The BSM exemption test requires the NYISO to estimate the effects on capacity and energy prices of prior CY projects in the Interconnection Queue (“Prior-CY Projects”) that accepted their PCA in a previous Class Year but have not begun construction. The developer of a new project must post security for the amount of the PCA, but it is not certain that such a project will eventually be built.⁵² The assumptions regarding such projects are important because over-estimating the amount of in-service capacity tends to depress the capacity price.

The NYISO’s tariff does not prescribe any specific assumptions for the treatment of Prior-CY Projects in the BSM exemption tests. Hence, it is important to use a reasonable approach for treatment of these projects in both the ICAP forecast as well as the net revenue calculations. The NYISO’s treatment of these projects is described below.

The NYISO included a Prior-CY Project in the price forecasts based on whether it was reasonably likely that the project would be built under the circumstances modeled in the EDS20-02 BSM evaluation. In particular, the NYISO assumed the project will be built if it has made progress in meeting its regulatory milestones, and if the project satisfied one of the following two criteria:

- the developer has made some other significant irrevocable financial commitment towards the project, or
- the project would earn sufficient forecasted revenues from the NYISO markets for it to be profitable for the developer to move forward.

The NYISO applied the above criteria to determine whether a particular Prior-CY Project will be built, and included it in the ICAP supply as a price-taker or at the project’s Offer Floor, if applicable. The NYISO’s treatment is reasonable given the uncertainty about whether the Prior-CY Projects will ever enter service.

The NYISO did not apply the above criteria for the projects that received an exemption and accepted their PCA in the recently concluded CY19 and CY19 ASDU evaluations. Instead, the NYISO included all such projects in the ICAP supply as price-takers, since the developers accepted their PCA less than six months ago, and may not have had an opportunity to make additional progress at the time of the EDS20-02 BSM evaluation. The NYISO’s treatment for these projects is consistent with the changes it proposed as part of its Part A enhancements filing. Ultimately, excluding these projects from the ICAP forecast would not have affected the EDS20-02 BSM determinations.

⁵² In some cases, the PCA may be very small relative to the overall investment, so there is little cost to the developer of remaining in the queue. In other cases, a project may remain in the interconnection queue for more than a year with little risk to the developer that it might lose a portion of its deposit if the project does not ultimately move forward.

4. Examined Facilities Seeking Competitive Entry Exemption

As discussed in Section II, the NYISO considered requests from one Examined Facility seeking a CEE (“CEE Projects”) in its EDS20-02 BSM evaluation. The NYISO’s Tariff requires it to conduct the Part A and Part B tests modeling the potential entry of CEE Projects like other Examined Facilities. Accordingly, the NYISO estimated the UNC of the EDS20-02 CEE Project based on the information provided by project developer. The NYISO subsequently incorporated the UNC of the CEE Project into its ICAP price forecast in a manner that is consistent with the test procedure described in Section VII.H. However, the Tariff-prescribed treatment for the CEE Projects could produce unreasonable outcomes for the BSM evaluations.

A developer’s choice to move forward with a CEE Project will be driven by its own expectations, but the same information is not incorporated into the NYISO’s estimated UNC. For instance, the developer of a CEE Project that would qualify for an exemption from the Offer Floor may commence construction, and expend significant costs by the time the NYISO issues initial determinations. Similarly, it is possible for the developers of CEE Projects to have a view of the future market conditions that is significantly different from the NYISO’s assumptions, particularly in areas where the NYISO’s methodology could be enhanced.⁵³ In such situations, the UNC calculated in compliance with the tariff may not provide a reasonable representation of whether a CEE project would be in service during the MSP. Therefore, the NYISO’s approach could result in unreasonably excluding CEE Projects in some situations.

Therefore, we recommend the NYISO develop Tariff provisions that would allow it to estimate the UNC based on a) any significant expenditures that the developer may have incurred by the Initial Decision Period, and b) well-substantiated developer forecasts.

5. Class Year Projects Located Outside the Mitigated Capacity Zones

For EDS20-02 BSM evaluation, the NYISO assumed over 3GW (ICAP Summer) of CY19, CY19 ASDU, and EDS20-01 projects, and over 100 MW of EDS20-02 projects that are located in Zones A-F and Zone K (Non-Mitigated Capacity Zones or “Non-MCZs”), respectively. The Tariff does not prescribe a specific treatment of the Non-MCZ Projects in its ICAP price forecast. Therefore, consistent with their treatment for determining LCRs for the MSP, the NYISO assumed that all Non-MCZ Projects will be in-service as price takers in the ICAP spot auctions for determining the (a) total UCAP, (b) the ICAP/UCAP translating factor, and (c) the winter-to-summer ratio.

While it would be reasonable to include all Non-MCZ Projects that are currently operational, it may not be reasonable to assume all Non-MCZ Projects will be in-service as a project’s decision to enter may depend on the capacity and energy revenues. Therefore, we recommend that the

⁵³ See Table 3 for a summary of recommended enhancements to BSM evaluations.

NYISO utilize the treatment that it followed in its CY17 evaluation for all the future CY evaluations.⁵⁴

In EDS20-02 BSM evaluations, the forecasted ICAP price for G-J Locality for all of the Capability Periods was determined by the NYCA ICAP demand curve. Hence, assuming that a subset of the Non-MCZ Projects will not be in-service during the MSP could have raised the forecasted ICAP price. However, the extent to which prices would increase could be offset by additional supply from price responsive resources such as imports, UDRs and mothball/ IIFO units.⁵⁵ Ultimately, this assumption did not affect any of the EDS20-02 determinations.

C. Impact of Imports on Capacity Price Forecast

The NYISO's assumptions regarding capacity imports from neighboring control areas are important since they impact the ICAP price forecast used in the BSM evaluations. This subsection discusses the underlying assumptions for imports into the NYCA from PJM, ISO-NE, HQ and IESO across various transmission lines.

1. Imports from PJM to New York City

The BSM exemption tests require the NYISO to estimate the effects on capacity prices of controllable transmission lines that possess Unforced Capacity Deliverability Rights ("UDRs"). The assumptions regarding such facilities possessing UDRs are important, since there is currently over 300 MW of potential capacity associated with UDRs between the PJM Interconnection ("PJM") and New York City.⁵⁶ The evaluation of potential UDR capacity is complicated by two factors:

- Holders of rights to use UDRs must obtain capacity from the neighboring market in order to sell capacity into New York. They will not generally do this unless the New York City price is expected to be greater than the price in the neighboring market.
- If the holder of rights to use the UDRs elects by the annual deadline not to use its UDRs to import capacity to New York, the New York State Reliability Council's annual IRM technical study and Study Report will assume the line can provide emergency assistance. Consequently, the existence of the transmission line will tend to reduce the LCR for Zone J and the G-J Locality.

In the EDS20-02 BSM evaluation, the NYISO assumed that transmission lines possessing UDRs would import capacity to New York City at recently observed levels throughout the MSP. While

⁵⁴ See Section VII.D.6 of the CY17 BSM report that discusses the treatment of Class Year 2017 Projects Located Outside the Mitigated Capacity Zones.

⁵⁵ See Section VII.C.2 for treatment of imports.

⁵⁶ 660MW CRIS for the HTP Scheduled Line expired in April, 2020.

this assumption did not impact the outcome of the EDS20-02 BSM evaluation, we recommend the NYISO to follow the approach that was used in the CY17 BSM evaluation.⁵⁷

2. Imports to Zones A-F and Zone K

The amount of net imports to and generation in NYCA Load Zones external to the G-J Locality can have a significant impact on the BSM exemption test for projects in G-J Locality. This is because capacity prices in the G-J Locality are sometimes determined by the NYCA ICAP Demand Curve when there is substantial surplus capacity in the G-J Locality. This subsection discusses assumptions about imports that affect the NYCA capacity price forecast.

Imports to Zone K

In recent years, there has not been a strong relationship between the capacity price spread between Long Island and neighboring ISOs, and the levels of capacity imports to Long Island across the Cross Sound Cable and the Neptune line (both of which have associated UDRs). Hence, the NYISO assumed that imports across the Cross Sound Cable and the Neptune line would remain at recently observed levels throughout the MSP.

Imports to Zones A-F

The NYCA's interfaces with neighboring Control Areas allow external resources from PJM, Hydro Quebec, ISO-NE and IESO to offer capacity into the NYCA region (*i.e.*, only the region outside of the G-J Locality, NYC, and Long Island).

PJM Interface – For the interface with PJM, the NYISO assumed that imports from PJM are likely to incur substantial firm transmission service charges and were assumed to be zero for the EDS20-02 BSM evaluation. The net exports were limited to historically observed maximum levels over the past three years for the entire MSP for the PJM interface.

ISO-NE Interface – For the interface with ISO-NE, the NYISO assumed the net exports based on the amount of capacity that cleared for export over the New York AC Ties in the Forward Capacity Auction for the period 2024/25 (FCA-15).

HQ Interfaces – Net imports from HQ in recent Capability Year were not found to be price responsive. The NYISO estimated the net imports from HQ to be at a level that was observed over the three most recent Capability Years from 2018/19 to 2020/21.

⁵⁷ In prior BSM evaluations, the NYISO assumed that transmission lines possessing UDRs would import capacity to New York City when capacity could be sold at a price that would compensate the UDR rights holder for the cost of obtaining capacity and transmission service in the neighboring market. See section VIII.E.1 of the CY17 MMU report.

IESO Interfaces – Net imports from IESO in recent Capability Year were not found to be price responsive. The NYISO estimated the net imports from Ontario to be at a level that was observed over the three most recent Capability Years from 2018/19 to 2020/21, limited by the import rights limits.

In EDS20-02 BSM evaluation, unlike the CY19 BSM evaluation, the NYISO did not consider some of the imports to be price responsive.⁵⁸ Assuming imports to be price responsive could have increased the forecasted ICAP prices. However, we recommend the NYISO follow the approach it utilized for forecasting imports in CY19 BSM evaluation in future BSM evaluations. Ultimately, this assumption had no impact on the EDS20-02 BSM determinations.

D. Estimating Locational Capacity Requirements for the Mitigation Study Period

The NYISO determines the Locational Minimum Installed Capacity Requirements (“LCRs”) every year for New York City, Long Island and the G-J Locality, which it uses in conjunction with the locational annual peak load forecast to calculate the locational ICAP requirements. The capacity price forecast used in the NYISO’s BSM evaluation is significantly dependent on the LCRs assumed for the duration of the MSP. Hence, the assumed LCRs are important inputs to the BSM evaluation.

The NYISO’s Tariff does not provide any guidance regarding the LCRs to be used in the BSM evaluations. In its EDS20-02 BSM evaluation, the NYISO estimated the LCRs for the MSP using the *Alternative Method for Determining LCRs*.⁵⁹ The LCRs during the MSP will be significantly influenced by the distribution of in-service capacity and by other system conditions which may differ from the current conditions. As discussed in VII.B, the NYISO’s assumptions underlying its capacity price forecast included several changes to its resource mix. For its EDS20-02 BSM evaluation, the NYISO estimated LCRs during the MSP by modeling the following changes to the MARS topology that was used for determining the 2021/22 LCRs:

- Updated load forecast for the MSP based on the 2021 Gold Book data
- Retirement or limited operation of units subject to the Peaker Rule in the last two years of the MSP
- Entry or exit of resources based on criteria described in subsection VII.B.1
- Addition of all EDS20-02 Projects, and the CY19, CY19 ASDU, EDS20-01 Projects that accepted their Project Cost Allocation (where applicable)
- Inclusion of the Public Policy Western NY Transmission project and Public Policy AC Transmission projects for all the three years of the MSP.

⁵⁸ See section VIII.C.2 on page 55 of the CY19 MMU report.

⁵⁹ For information on the LCR and IRM values that the NYISO estimated for the EDS20-02 BSM evaluation, refer Section 2.2 of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References*.

- Indian Point Series Reactors back in service

We find the NYISO’s approach for estimating the LCRs in the EDS20-02 BSM evaluation to be reasonable.⁶⁰ Given the volatility in LCR estimates and the difficulty of running the LCR Optimizer in the available timeframe, the NYISO is considering alternative approaches to simplifying its method for forecasting LCRs in its future BSM evaluations.⁶¹

E. Estimating Locality ICAP/UCAP Translation Factor

The ICAP/UCAP Translation Factor (“Translation Factor”) is used to translate the ICAP requirement, ICAP demand curves and the total supply into UCAP terms. In its EDS20-02 BSM evaluation, the NYISO calculated the Translation Factor by taking the ratio of the total UCAP and total ICAP of the resources that were assumed to be in-service.⁶²

The Translation Factor of the G-J Locality increased considerably from 3.6 percent in summer season of 2021/ 22 to an average of 8.8 percent in summer season of 2024/25, largely due to the inclusion of over 800 MW (ICAP Summer) of offshore wind. This increase in the Translation Factor in conjunction with the lowering of LCR (relative to 2021/22) resulted in a significant reduction in the UCAP requirement for the G-J Locality. We find the NYISO’s approach of estimating the Locality ICAP/UCAP Translation Factor to be reasonable.

F. Forecasted ICAP Reference Points

The NYISO’s Tariff requires it to forecast the ICAP Reference Points for the MSP to develop each MCZ’s ICAP Demand Curves for its BSM evaluations.⁶³ For the EDS20-02 evaluation, the NYISO updated the Gross CONE, net energy and ancillary services revenue offset, and the winter-to-summer ratio of the demand curve unit based on the methodology used in the Demand Curve Reset or Annual Update process.⁶⁴

Gross CONE – The Tariff requires the NYISO to identify the projected ICAP demand curves for its BSM evaluations “by applying the “inflation index””. Furthermore, the Tariff defines

⁶⁰ For the LCR values used in the EDS20-02 BSM evaluation, see section 2.2 of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References*.

⁶¹ See NYISO presentation “Buyer Side Mitigation (BSM) Process Improvements” presented to the Installed Capacity Working Group on February 18, 2021.

⁶² See subsection B. Forecasted ICAP/UCAP Translation Factors for different Localities are available in Table 4 of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References*.

⁶³ MST Section 23.4.5.7.15.3.

⁶⁴ For updates regarding the Gross CONE, net EAS revenues, and WSR, see sections 2.4.1, 2.4.2, and 2.4.3, respectively of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References*.

Mitigation Net CONE (“MNC”) as “the capacity price on the currently effective ICAP Demand Curve for the Mitigated Capacity Zone” at the prescribed Level of Excess. Therefore, the NYISO forecasted the Gross CONE of the demand curve unit by inflating the value underlying the currently effective ICAP Demand Curves using the applicable Inflation Index.⁶⁵

Energy and Ancillary Services Revenue Offset - The NYISO developed the LBMPs for the years 2024/25 through 2026/27 using the forward prices.⁶⁶ The NYISO adjusted the forecasted LBMPs using with the prescribed Level of Excess factors, and applied the dispatch model that was developed as part of the 2020 ICAP Demand Curve Reset study to estimate the yearly EAS offset of the reference unit.

Winter-to-Summer Ratio - The NYISO updated the WSR for each capability period of the MSP using the total assumed summer and winter ICAP supply of capacity resources (see subsection B), translated into UCAP terms based on the associated ICAP/UCAP Translation Factors (see subsection E).⁶⁷

Overall, we find the NYISO’s approach to forecasting the ICAP Reference Points for the MSP to be compliant with its Tariff.

G. Treatment of Mitigated Projects in Capacity Forecast

The BSM exemption test requires the NYISO to estimate the effects on capacity prices of resources that are subject to an Offer Floor. An Offer Floor is imposed on such resources until the resource clears for 12 months, which do not have to be consecutive.⁶⁸

In its previous BSM evaluations, the NYISO forecasted capacity prices not only during the MSP, but also for the months leading up to the MSP. If MW of capacity subject to an Offer Floor was expected to clear in a month prior to the MSP or during the initial portion of the MSP, those sales would be considered in the NYISO’s assumptions regarding how much of the unit’s capacity would be subject to the Offer Floor in subsequent months of the MSP.

However, in its EDS20-02 evaluation, the NYISO assumed that all Prior-CY resources will not be able to sell the capacity that is subject to an Offer Floor. Although this assumption likely did

⁶⁵ Section 23.4.5.7.15.

⁶⁶ See subsection VI.A.

⁶⁷ Estimated values for WSR and ICAP/UCAP Translation Factors over the MSP are available in tables 3 and 4, respectively of the *Buyer Side Mitigation ICAP Forecast – Expedited Deliverability Study: 2020-02 Assumptions & References*.

⁶⁸ The 12-month criterion is applied by the level of UCAP that cleared in the ICAP Spot Market Auction. Thus if a 100 MW resources clears 60 MW for six months and 100 MW for six months, 60 MW of the resource’s cleared UCAP would not be mitigated and 40 MW would still be subject to the Offer Floor. See *BSM Numerical Example*, Section 8.4.

not impact the outcome of the EDS20-02 BSM evaluation, we recommend the NYISO evaluate the impact of the capacity subject to an Offer Floor on the forecasted prices in a manner that is consistent with its previous BSM evaluations.⁶⁹

H. Testing Multiple Examined Facilities

MST §23.4.5.7.3.2 states that “when the ISO is evaluating more than one Examined Facility concurrently, the ISO shall recognize in its computation of the anticipated ICAP Spot Market Auction forecast price that Generators or UDR facilities will clear from lowest to highest, using for each Examined Facility the lower of (i) its Unit Net CONE or (ii) the numerical value equal to 75% of the Mitigation Net CONE”. This provision is designed to ensure that the test identifies the most economic Examined Facility when some but not all of the Examined Facilities in the Class Year are economic.

Under the current procedure, the NYISO first tests the Examined Facility with the lowest presumptive Offer Floor by itself in the Part A and Part B tests assuming it offers as a price taker.⁷⁰ If the first Examined Facility received an exemption, it was included in the test for subsequent Examined Facilities. If the first Examined Facility did not receive an exemption, then it was excluded from the ICAP forecast for the subsequent Examined Facilities in the sequence. While this approach is reasonable and compliant with the Tariff, if the presumptive Offer Floors of multiple Examined Facilities were determined to be equal to the Default Net CONE, then all such projects are tested simultaneously in the Part A and Part B tests. This could result in mitigating all Examined Facilities even when a subset of the projects could have been exempt if they were tested sequentially.

For instance, consider a BSM evaluation where two Examined Facilities, Project X of 200 MW and Project Y of 300 MW, are being evaluated for a Part A exemption. Assume that each Examined Facility’s UNC is greater than the DNC, and that the in-service capacity is 350 MW below the Part A threshold. In this situation, if the Part A test is conducted simultaneously, neither of the two Examined Facilities would be exempt from an Offer Floor. However, if the Examined Facilities are tested one at a time, the first project to be tested would be exempt from an Offer Floor under the Part A test. Figure 1 illustrates this example.

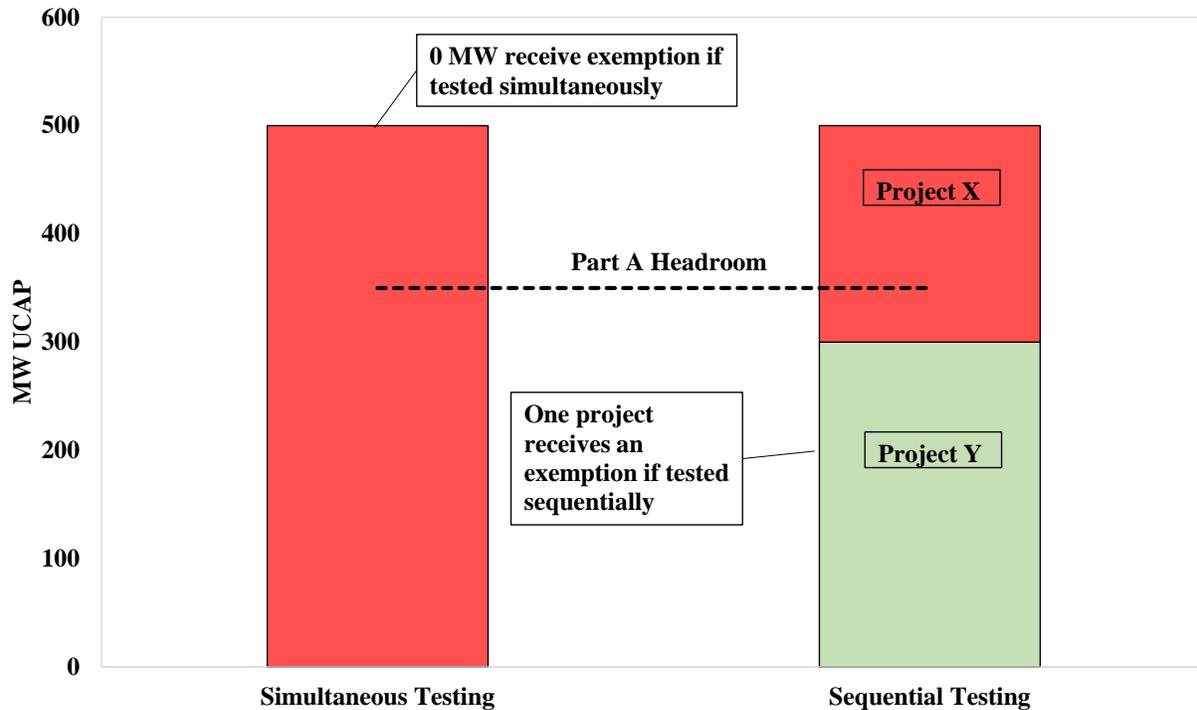
The purpose of the Part A test is to ensure that resource are exempted if their capacity is needed to satisfy reliability needs in their Capacity Zone. As illustrated above, testing Examined Facilities in order of their presumptive Offer Floors could result in all resources being tested simultaneously, which could lead to mitigating all resources even when a subset are required to satisfy local reliability needs. Hence, we recommend that the NYISO modify its Tariff to allow

⁶⁹ See Section VIII.G of the MMU report on CY19 BSM evaluations.

⁷⁰ See *BSM Numerical Example*, Section 8.1 and Section 8.2.

for testing Examined Facilities sequentially in the order of their Unit Net CONE rather than the presumptive Offer Floor.⁷¹

Figure 1 – Example Impact of Simultaneous Part A Testing



⁷¹ The NYISO had recently proposed Tariff revisions to the Part A test that would have addressed this issue for the Part A test. See NYISO’s April 30, 2020 filing in ER20-1718-001. However, the Commission rejected the NYISO’s filing. The NYISO filed a Petition for Review of the Commission’s order in the United States Court of Appeals for the District of Columbia Circuit on December 31, 2020.

VIII. CONCLUSIONS AND RECOMMENDATIONS

In the EDS20-02 BSM evaluation, the NYISO evaluated four Examined Facilities under the Part A and Part B tests. In addition, it evaluated one project for a CEE. The NYISO determined three Examined Facilities to be exempt from an Offer Floor pursuant to the provisions of either the Part B test, or the CEE provisions.

We reviewed materials documenting the NYISO's evaluation of investment and operating costs, the reasonably anticipated LBMPs and net revenues, and capacity price forecasts for all the EDS20-02 Examined Facilities. In addition, we reviewed the materials regarding the request for a CEE.

Ultimately, two of the Additional CRIS MW projects - the Bowline 1 and Bowline 2 Projects were determined to be exempt under the Part B test primarily because of their low investment costs (compared to a new build).⁷² The CVEC Project did not receive an exemption under the Part B test, but was determined to be exempt under the CEE provisions.⁷³ We conclude that the NYISO's BSM determinations in EDS20-02 Study were made in accordance with the requirements of the Tariff and based on reasonable assumptions.

Following our review of the EDS20-02 BSM evaluation, we identify four issues with the Tariff that, if addressed, could improve the accuracy of the capacity price forecasts and the Unit Net CONE.⁷⁴ We also identify one improvement to the BSM evaluation assumptions that do not require tariff modifications. None of these issues, by itself or in combination, affected the determinations in the EDS20-02 BSM evaluation. Nonetheless, these issues may have significant impacts on the results of future BSM evaluations. Accordingly, we recommend that the NYISO address these issues in future evaluations.

The issues we identified are summarized in Table 3 below. The Table also shows the portion of BSM evaluations that is affected by the issue, whether addressing this issue requires a Tariff change (T) or can be addressed by improving existing procedures (I), and the subsection in the report where we discuss the specific issue in further detail.

⁷² The Bowline 1 and 2 facilities were evaluated based only on incremental costs associated with increased CRIS for existing units.

⁷³ The CVEC Project was evaluated based on costs associated with development of a new facility (see Section I.B.1).

⁷⁴ Our previous BSM reports include other recommendations which did not apply to the EDS20-02 BSM evaluation.

Table 3 - Summary of Recommended Enhancements to BSM Evaluation

No	Issue	Evaluation/ Rec	Section
1	Starting Capability Period is unrealistic for most Examined Facilities	Part A & B/ T	VIII.A
2	Treatment of some Existing Units at risk of retiring or mothballing is unrealistic for some units	Part A & B/ T	VIII.B.2
3	Treatment of Examined Facilities seeking Competitive Entry Exemption may be inconsistent with developers' expectations	Part A & B/ T	VIII.B.4
4	Test Examined Facilities sequentially in the order of their Unit Net CONE rather than the presumptive Offer Floor	Part A & B/ T	VIII.H
5	Modify ESR dispatch model to: (a) Reflect the ability of the ESR to submit only hourly offers, (b) Develop a reasonable methodology that accounts for the operator's limited foresight of future prices when offering the unit	Part B/ I	VII.D.1