POTOMAC ECONOMICS

Memorandum

TO: Richard J. Dewey

FROM: David Patton, Pallas LeeVanSchaick, and Joseph Coscia

DATE: October 23, 2024

RE: MMU Comments on 2024 RNA

The Reliability Needs Assessment ("RNA") is a key step in the NYISO's Comprehensive System Planning Process ("CSPP"). The RNA identifies the reliability needs for the Bulk Power Transmission Facilities ("BPTF") for a study period of years 4 through 10 following the start of the RNA based on a set of assumed (i.e., Base Case) conditions. After the RNA identifies reliability needs and the NYISO solicits proposals for market-based and regulated solutions, the Comprehensive Reliability Plan ("CRP") identifies the set of solutions that could be used to satisfy the reliability needs over the study period. The CRP also indicates whether any regulated solution must move forward to satisfy the system's reliability needs.

As the Market Monitoring Unit for the NYISO, we are required to provide comments on the RNA regarding whether market design changes are needed to provide better incentives for the markets to help satisfy the reliability needs of the system.[1] This memo provides our comments on the 2024 RNA and highlights areas of the NYISO's market design that fail to provide appropriate incentives for satisfying the planning reliability needs.

A. Executive Summary

The 2024 RNA evaluates the reliability of the system under a base case set of assumptions over the next ten years. The RNA highlights multiple factors contributing to uncertainty about future supply and demand trends which could have significant implications for reliability. The RNA evaluates scenarios which illustrate the impact of variations in specific factors on the system's capacity margin or deficiency. These scenarios are useful for directing the attention of stakeholders and regulators to policy, planning, operational, and market challenges that deserve consideration in the coming years. This memo focuses primarily on the emergence of reliability needs that reveal deficiencies in the NYISO market design and that may result in out-of-market investment or regulatory intervention in the near future.

MMU Comments on Transmission Security Needs: NYISO's reliability planning process has increasingly identified transmission security criteria violations as a driver of reliability needs for BPTFs. The 2023 Q2 STAR report and 2024 RNA both identified transmission security margin

[1] See NYISO MST Section 30.4.6.8.2. "Following the Management Committee vote," the MMU evaluates "whether market rules changes are necessary to address an identified failure, if any, in one of the ISO's competitive markets."

deficiencies in New York City. In addition, Con Edison identified transmission security violations on local non-BPTFs at the 138 kV level. Our comments raise the following concerns:

- *Capacity market requirements are not aligned with 'effective planning requirements'* – We find that the reliability planning process effectively requires more capacity to meet transmission security needs than is represented in the capacity market requirements that are ostensibly based on transmission security. For example, we find that the 'effective planning requirement' for the 2025 capability year is 743 MW higher in New York City than the expected capacity market LCR based on the Transmission Security Limit.
- *'Planning-market gap' undermines investment incentives* – Investment is needed to retain existing generation and build new capacity as demand grows. Out-of-market actions to satisfy the planning requirements increase risk to investors by depressing capacity prices below anticipated levels. For example, even though 563 MW of peaking units were retained to address the Reliability Need identified in the 2023 Q2 STAR, a large (840 MW) surplus in the NYC capacity market is now expected in summer 2025. This gap between planning assumptions and market outcomes increases risk to investors.
- *Treatment of peak-shaving programs inflates transmission security-driven LCRs and reliability needs* – Transmission security analyses utilize peak load forecasts that are 'reconstituted' with load that was curtailed by SCR program resources. Load reductions by SCRs are not counted towards satisfying transmission security needs because SCRs are activated in an *emergency* procedure. However, when SCR program resources also participate in peak shaving programs, the resulting load reductions are not counted towards satisfying the reliability need even though they occur during *normal* operations. This treatment significantly increased capacity shortfalls in the transmission security analysis of the RNA and inflates the Transmission Security Limit for New York City by a comparable amount.[2]
- *Enhancements are needed to adapt the capacity market to transmission security-driven LCRs* – We have recommended more efficient compensation for resources that do not contribute to transmission security needs (Recommendation #2022-1) and setting demand curves to avoid overcompensation of surplus capacity in excess of the transmission security requirements (Recommendation #2023-4).
- *Local deficiencies demonstrate need for Granular Capacity Zones* – ConEd found that expected retirements caused by the DEC Peaker Rule would lead to an immediate 240 MW deficiency that would "propagate" across portions of New York City's 138 kV system.[3] The capacity market provides no incentives to satisfy these locational

[2] The RNA did not provide estimates of the amounts by which the requirements were over-estimated due to this issue. However, based on the share of SCR capacity registered for peak-shaving programs in each sub-zone, we estimate that this issue inflated the New York City reliability need and TSL by approximately 160 MW and the NYCA reliability need by 460 MW.

[3] The RNA did not provide detailed information about the transmission bottlenecks driving the 138 kV reliability need. However, it is possible that the import-constrained area includes 138 kV portions of Astoria West, Queensbridge, Vernon, Greenwood, Fox Hills, and Freshkills. We estimate that such an import-constrained area would have a non-coincident summer peak load of nearly 4 GW, making this pocket larger (in terms of summer peak load) than any zone besides New York City and Long Island.

requirements, which increasing the likelihood that existing generation will be retained through out-of-market contracts in the future. We recommend creating more Granular Capacity Zones (#2022-4) to address this type of gap in the capacity market design.

- *Investors need additional transparency regarding planning study inputs* – NERC, NPCC, and NYSRC oblige the NYISO to satisfy specific reliability criteria assuming "credible combinations of system conditions" in its transmission security analysis, but these entities generally do not specify the degree of conservatism that the NYISO must use in its study. While individual assumptions are often documented and discussed in detail by the NYISO with stakeholders, specific assumptions may become more or less conservative for reasons not anticipated by the market. Improved transparency would help investors and market participants anticipate system needs and make more efficient long-term decisions.

In addition to our comments on transmission security, we highlight two other areas where the findings of the RNA indicate a need for market design improvements, including:

- Ensure that market participation models allow flexible loads to fully leverage their load reduction potential in the capacity, energy, and ancillary services markets;
- Adopt seasonal ICAP requirements and accreditation and improve winter reliability models, so that the capacity market provides incentives to address the growing long-term winter reliability risk found in the 2024 RNA (Recommendations #2021-4 and #2022-2).

The remaining sections summarize key findings of the RNA and provide our comments.

B. Summary of RNA Findings

The 2024 RNA identified a Reliability Need in New York City beginning in 2033. Under the RNA base case assumptions, the transmission security margin in NYC is deficient by 17 MW in summer 2033 and 97 MW in summer 2034. Following the post-RNA base case assumption updates, if this reliability need still remains, NYISO will initiate a process to solicit and select a solution.

The 2024 RNA also found a negative statewide Power Flow Margin in winter by 2034. This means that, due to low levels of reserve capacity under base case assumptions, the system lacks flexibility to satisfy load while maintaining all BTPF facilities within applicable transmission security criteria. The statewide winter power flow margin in 2034 is negative 675 MW. NYISO attributed this shortfall to a statewide need for additional capacity, rather than a specific transmission security violation. As a result, the 2024 RNA does not identify a Reliability Need related to the statewide power flow margin. The 2024 RNA also found a statewide resource adequacy margin of only 50 MW by 2034, driven by winter reliability risk.

C. Comments on Transmission Security Analysis

NYISO's reliability planning process has increasingly identified transmission security ("TS") criteria violations as a driver of reliability needs. The 2023 Q2 Short Term Assessment of Reliability (STAR) identified a 446 MW need driven by TS violations in 2025, resulting in the retention of in-city peaking plants. The 2024 RNA finds another TS need in New York City

emerging by 2033. While NYISO did not identify a statewide TS need in the 2024 RNA, it is possible that the negative statewide power flow margins identified in the RNA will result in a reliability need if similar issues are found closer to the study year in a future RNA or STAR study.

The NYISO markets should provide incentives to attract and retain resources needed to satisfy the system's planning criteria. If there is significant misalignment between the planning and market processes, the NYISO markets could fail to attract and retain the needed capacity. This will result in a growing need for regulated solutions. In this section, we discuss the emerging planning-market gap, the consequences of the growing gap, and the need for market design enhancements and procedural transparency to address these issues.

1. Planning Requirements are Stricter than Market Requirements

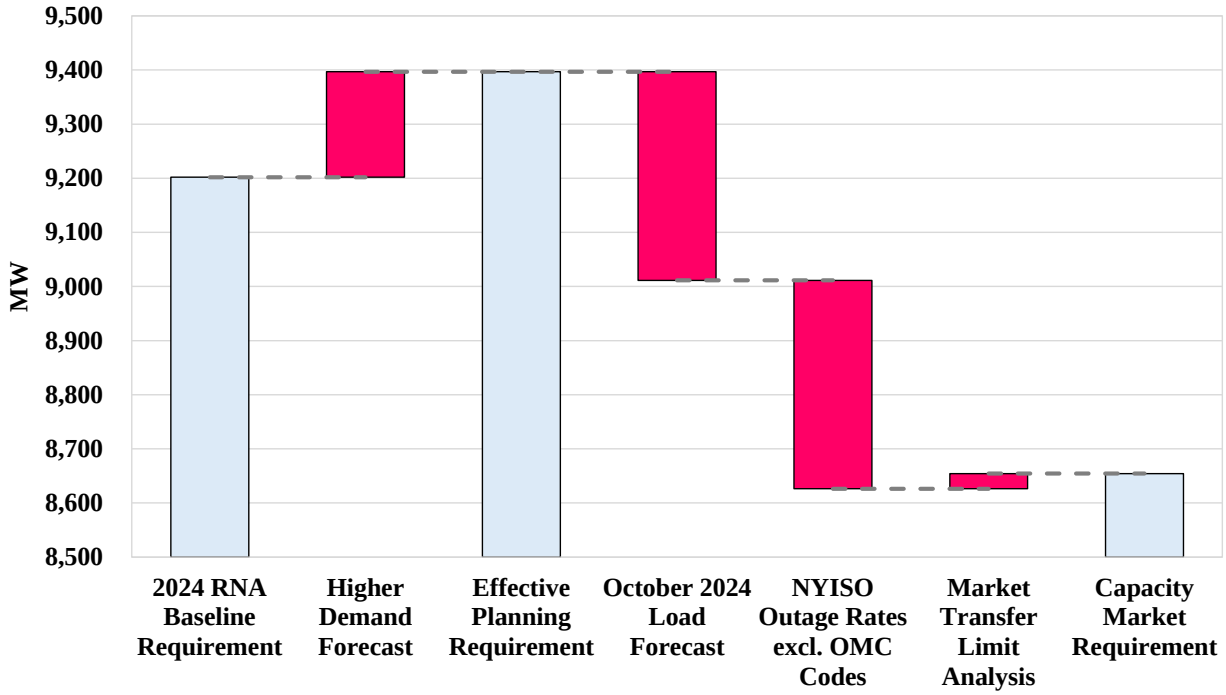
The assessments performed in NYISO's planning studies (including the RNA and STAR studies) result in effective resource requirements that are stricter than the requirements used in the capacity market.[4] In particular, the planning transmission security ("TS") assessments produce effective requirements that are higher than the minimum capacity market LCRs set based on the transmission security limit methodology ("TSL-floors").

Figure 1 compares the 'effective planning requirement' for New York City in 2025 based on inputs from the 2024 RNA with the expected ICAP requirement based on the TSL floor. The effective planning requirement of 9,400 MW approximately represents the amount of installed capacity needed to avoid triggering a reliability need and potential regulated solution based on the RNA.[5] The 'capacity market requirement' of 8,654 MW is 743 MW lower. We discuss the reasons for this gap below.

[4] The RNA and STAR reports do not formally a establish a capacity requirement comparable to the capacity market ICAP requirements. We use the term "effective planning requirement" to mean the minimum amount of installed capacity that would be needed to satisfy reliability criteria, based on the assumptions and practices used in the planning studies (for example, the effective transmission security requirement would be the amount of ICAP needed to produce a transmission security margin of 0 MW).

[5] We calculate the "2024 RNA Baseline Requirement" using the inputs from Figure 58 of Appendix F of the October 9, 2024 RNA draft. The locality Resource Need (row F) is divided by one minus an average derating factor of 7.6 percent calculated using the values in rows G, H and J. We then add the ICAP of SCRs in Zone J (478.7 MW) to estimate the ICAP requirement based on the TSL.

Figure 1: Comparison of TS-Based Requirements for New York City in 2025



The following items result in a difference between the effective planning requirement and capacity market requirement in New York City:

- *Higher Demand Forecast*: The Reliability Need identified in the 2024 RNA was based on the baseline (2024 Gold Book) demand forecast. However, NYISO's most recent selection of a reliability solution (the retention of the Narrows and Gowanus peakers in NYC following the 2023 Q3 STAR process) relied on a higher demand forecast than the baseline Gold Book forecast to account for uncertainty in policy-driven load growth. This indicates that, in practice, NYISO may identify near-term planning needs based on a higher assumed load level than the baseline forecast.
- *October 2024 Load Forecast*: The capacity market uses a baseline load forecast designed to represent expected peak load for the upcoming capability year. NYISO published its Final IRM Forecast on October 2, 2024. The Final IRM Forecast coincident peak load forecast for New York City in 2025 was 176 MW lower than the 2024 Gold Book load forecast for the same year and 356 MW lower than the 'Higher Demand Impact' load forecast shown in the 2024 RNA. While the final IRM load forecast used in the market is not always lower than the corresponding Gold Book forecast from the preceding year, this has usually been the case.[6]
- *NYISO Outage Rates exclude OMC Codes*: The planning TS assessments and market TSL-floor calculation both account for unavailability of generators due to forced outages, but they use different outage rate values. NYISO's planning assessments use NERC 5-

[6] The final IRM forecast for non-coincident peak load in New York City was lower than the corresponding Gold Book forecast from the preceding year for eight out ten of the summers 2016-2025 and was lower by an average of 124 MW across all ten years.

year average outage rates, while the capacity market TSL studies use 5-year average NYISO outage rates that exclude certain outages codes considered out of management control (OMC) such as outages of step-up transmission facilities. The NERC outage rates are higher than the market outage rates, resulting in a higher effective capacity requirement. NYISO has recently stated that inclusion of these OMC outages codes in the TS assessment is inappropriate and is investigating how they can be excluded from the NERC outage rates used in planning assessments.[7]

- *Market Transfer Limit Analysis*: There is a small difference (28 MW) between the N-1-1-0 transfer limit used in the 2024 RNA and in the capacity market TSL Study process. These are driven by differences in the timing of the assessments.

In the future, effective planning requirements may also be stricter than market requirements in other areas of the state. The 2024 RNA found a statewide power flow margin (based on transmission security analysis) of negative 675 MW in 2034, compared to a statewide resource adequacy margin of 50 MW. There is currently no transmission security-based statewide ICAP requirement in the capacity market. Although the 2024 RNA does not identify a Reliability Need based on this statewide power flow margin, it is possible that a similar finding in a future STAR study or RNA would result in a need being identified. This would constitute an 'effective planning requirement' that is stricter than the official statewide ICAP requirement established by the IRM study process.

2. The Planning-Market Gap Undermines Investment Incentives

A failure of capacity market requirements to reflect effective planning requirements ("planning-market gap") could severely undermine long-term incentives for investment. NYISO will take actions to address any Reliability Needs identified in the planning process, potentially including selection of regulated solutions (generation or transmission). If the capacity market requirements are significantly lower than the effective planning requirements, solutions to planning needs will result in an artificial surplus in the capacity market. This will result in suppressed capacity prices that do not indicate a need to attract or retain capacity even in circumstances when the system or locality has very tight planning margins.

The near-term capacity price outlook for New York City provides an example of prices failing to reflect effective planning requirements. Prices will be affected by the retention of the 563 MW Gowanus and Narrows peakers as a solution to the Reliability Need identified in the 2023 Q3 STAR. As a result, we project a capacity market surplus in New York City of ~840 MW ICAP (9.7 percent above the market TSL-floor) in the 2025/26 Capability Year, resulting in expected revenues of $92 per kW-year of UCAP, which may be less than the going-forward costs of some existing capacity.[8] However, New York City will have a surplus, including the Gowanus and Narrows units, of only 100 MW (1.1 percent) above its effective planning requirement.

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[7] See October 7, 2024 ICAPWG presentation "Transmission Security Limit Floor for the Installed Capacity Market - Follow-up Discussion", slide 8, available here.

[8] This price estimate assumes the NYISO's recommendation to use a 2-hour battery as the demand curve reference technology and preliminary 2025/26 capacity accreditation factors (CAFs) as of October 2024.

The capacity market cannot efficiently perform its function – to attract and retain capacity needed for reliability – if there is a large planning-market gap. If investors believe that NYISO planning actions will effectively prevent prices from rising to levels that indicate capacity is needed, they will have weak incentives to build new capacity or undertake costly maintenance needed to extend the life of existing units. Over time, this will likely lead to a lack of investor interest in the NYISO markets, an absence of market-based solutions to future reliability needs, and economic retirement decisions in circumstances that cause planning requirements to be violated. As a result, NYISO may be forced to rely on inefficient regulated solutions.

For example, suppose a future STAR study identifies a reliability need driven by transmission security in winter, and there are no market-based solutions (because capacity prices are too low when the effective planning requirement is met), so NYISO addresses the need by granting cost recovery to a generator's firm gas transportation contract. The additional firm gas generation will cause winter the capacity market to undervalue firm fuel generators and overvalue non-firm generators, leading other generators to shed their firm fuel arrangements or export capacity in winter. Hence, a large planning-market gap will undermine investment incentives and likely increase the cost of maintaining reliability.

3. Treatment of Peak-Shaving Programs Inflates TS-driven LCRs & Reliability Needs

Transmission security analyses use peak load forecasts that are 'reconstituted' with load that was not consumed by SCR program resources during historic periods. For example, if a 3 MW load was curtailed under peak conditions, its metered consumption during the coincident peak load period was 0 MW, so 3 MW is added back (with additional adjustments to account for factors such as weather normalization) to determine the reconstituted load forecast for future periods.

NYISO has stated that its transmission security criteria are based on the amount of capacity needed under *normal* operations. Load reductions by SCRs are not counted towards satisfying transmission security needs because SCRs are activated in an *emergency* procedure. However, when SCR program resources also participate in peak shaving programs, the resulting load reductions are not counted towards satisfying the reliability need even though peak shaving occurs during normal operations. The RNA did not analyze this issue, but we estimate that the treatment of SCRs that participate in peak shaving programs increased capacity shortfalls in the transmission security analysis by approximately 160 MW in New York City and 460 MW in NYCA. This could result in an inflated transmission security-based reliability need.

Likewise, the treatment of SCRs that participate in peak shaving programs will inflate the Transmission Security Limit for New York City by a comparable amount (~160 MW). This will tend to increase the LCR for New York City and associated clearing prices. While this issue currently leads to inflated requirements, NYISO has been exploring changes to the SCR program that would allow SCR capacity to make at least a partial contribution to satisfying transmission security requirements.

4. Design Changes are Needed to Reflect Planning Requirements in the Market

Market requirements should be aligned with planning requirements in order to provide efficient incentives for investors. However, capacity market enhancements are needed before planning

requirements can be efficiently represented in the market. This is because NYISO's planning reliability needs are largely driven by transmission security (TS). We have identified market design problems when requirements are set based on TS and recommended solutions:

- *Inefficient Accreditation*: some resources contribute less to meeting TS needs than they are accredited for in the capacity market. These include: loads participating as SCRs, very large generators, and offshore wind. The presence of these resources results in higher TSL-based LCRs, but this is not reflected in their accreditation, so they are over-compensated for capacity. Battery storage units could contribute more or less to transmission security reliability than is reflected in their accreditation, so this issue will also tend to distort incentives for battery storage investment. Hence, we have recommended accrediting all resources based on the requirements they actually contribute to meeting (Recommendation #2022-1).
- *Overcompensation of Surplus Capacity*: the current capacity market demand curves overestimate the value of surplus capacity when LCRs are set by TSL-floors. This is because the TSL-floors already represent needs under a relatively conservative scenario, so the benefit of additional surplus capacity is very low. As a result, consumers are overcharged when there is a capacity surplus beyond the TSL-floor. Hence, we have recommended establishing transmission security demand curves that reflect the value of surplus capacity when requirements are set based on TSL (Recommendation #2023-4).

Addressing these recommendations would provide: more efficient incentives for investors to provide the amount and type of capacity needed to address reliability needs, and significant benefits for consumers (hundreds of millions of dollars per year). The rationale for these recommendations is discussed in our 2023 State of the Market report and the recommended design improvements are discussed in detail in our September 24, 2024 ICAPWG presentation.

5. An Efficient Market Requires Transparent Planning Practices

In the preceding subsections, we argue that the capacity market requirements and design elements should be aligned with effective planning requirements. It is also important to ensure that the effective planning requirements themselves are reasonably transparent to market participants. This will enable investors to anticipate how future system needs may evolve. In particular, there is a need to clarify the level of conservatism that planning transmission security assessments are intended to capture.

NYISO's planning assessments are designed to comply with applicable NERC, NPCC, and NYSRC criteria. Some elements of the NYISO's 'Transmission Security Margins' analysis are determined by these criteria, while others could have a wide range of values that would comply with the criteria. In particular, NYSRC rules require the transmission system to be planned to meet performance requirements considering the following (in addition to design contingencies):

> Credible combinations of system conditions which stress the system shall be modeled, including load forecast, internal *NYCA* and inter-Area and [sic] transfers, transmission configuration, active and reactive *resources*, generation availability including limitations related to weather conditions (e.g., non-firm gas generation unavailability during winter peak),

and other dispatch scenarios. All reclosing facilities shall be assumed in service unless it is known that such facilities will be rendered inoperative.[9]

The NYSRC reliability rules do not prescribe specific methods for determining the values of many of these parameters. The rules also do not define 'credible combinations' and do not contain principles for the general level of conservatism to be embedded in the combinations of conditions used for base case assessments. A scenario reflecting the 50th percentile value of generator availability or the 90th percentile value are both credible in the sense that either scenario could realistically occur. But it is unclear what framework is used to choose between credible assumptions with greater or lesser likelihood of occurring for the purposes of establishing baseline reliability assessments.

Table 1 below summarizes the key assumptions used in the transmission security margins "tipping points" analysis for New York City. We divide assumptions between those that are prescribed by NPCC/NYSRC reliability criteria and those that constitute the "credible combinations of system conditions" considered by NYISO.

Table 1: Summary of Assumptions in NYC TS Tipping Points Analysis

Assumption	Approach	Basis
Import Limit	Based on power flow modeling of N-1-1-0 transfer limit.	NPCC/NYSRC criteria
Baseline Demand Forecast	Gold Book coincident peak load forecast.	Credible combinations
Higher Demand Forecast	Gold Book higher demand forecast representing faster economic growth, policy-driven electrification, and large load growth than base case. Reliability Needs were quantified using Higher Demand Forecast in 2023 Q2 STAR and Baseline Demand Forecast in 2024 RNA.	Credible combinations
Generator Outages	NERC 5-year generator class average outage rates. Includes outages related to transmission system problems (9300 event codes). Includes additional outages of large generators that are modeled as unavailable in N-1-1-0 limit calculation (e.g. Ravenswood 3).	Credible combinations
Generator Temperature-Based Rerates	None (output reflects expected performance at ICAP conditions).	Credible combinations
Generator Fuel Unavailability	No fuel available to gas-only generators without firm contracts at winter peak. No reduction in availabiltiy of dual fuel / oil generators due to fuel inventories.	Gas fuel availability based on NPCC criteria.

[9] NYSRC Reliability Rules and Compliance Manual Version 47 (June 14, 2024), Rule B.1., requirement R1.1.

Assumption	Approach	Basis
Offshore Wind Output	Summer: 10% of nameplate Winter: 20% of nameplate Represents P20 level (80% chance of exceedance) during peak load window.	Credible combinations
Solar PV Output (UPV and BTM)	Summer: 22% of DC MW in 2025, 11% in 2034. Winter: 0%. Represents P50 level (50% chance of exceedance) during peak load window.	Credible combinations
External Imports	Includes recent and expected UDR sales (Linden VFT and CHPE), does not include additional non-firm imports.	NERC criteria (MMWG ERAG interregional coordination)
UDR outages	None for UDRs that are not part of N-1-1-0 design contingency.	NPCC/NYSRC criteria (transmission outages modeled based on design contingencies)
SCRs	Not assumed to provide any load reduction.	NPCC/NYSRC Criteria (Emergency Action considered to be inconsistent with NSYRC requirement to secure system at Normal transfer criteria)

Table 1 shows that the transmission security margins assessment contains many assumptions with values determined on the basis of the 'credible combinations of system conditions.' There is variation in the likelihood of individual assumptions in this category. For example, conventional generator availability is intended to reflect *average* outage rates, while offshore wind availability reflects a more conservative (20^{th} percentile) value. We do not assert that any particular assumption is inappropriate, but highlight the challenge faced by stakeholders in anticipating the target level of reliability that current and future assumptions will produce.[10]

We recommend that NYISO articulate clear and consistent principles for the selection of assumptions that are material to planning analyses, but which are not prescribed by planning criteria. This will provide greater transparency for market participants to form expectations about future system needs driven by transmission security and the resulting value of their investments. It may not be feasible to stipulate specific methodologies for inputs that are continually evolving, but transparent guidelines for the level of conservatism that modeled system conditions are intended to reflect would help to provide stability to market participants' expectations.

[10] By contrast, in resource adequacy analysis, assumptions are intended to reflect the most realistic probabilistic distribution for each parameter and the system requirement is set based on a defined target level of reliability (e.g. loss of load expectation not exceeding 1 day in 10 years).

D. Comments on Flexible Load Participation Models

New York is expected to experience significant electric load growth in the next decade due to the installation and expansion of large loads such as cryptocurrency mining facilities and other data centers. NYISO assumed that 1,200 MW of large loads will operate flexibly and curtail during critical events. Without this assumption, the 2024 RNA would have found a violation of statewide resource adequacy criteria by 2034. This illustrates the importance of ensuring that the NYISO markets incentivize loads to provide flexibility to the system if they are capable.

Many large loads today participate in NYISO's Special Case Resource (SCR) program. The ability of these resources to curtail load is not considered in NYISO's planning transmission security assessments or in the capacity market TSL-floors. Hence, if one of the large loads that is modeled as flexible in the 2024 RNA were to participate in the SCR program, this would degrade planning margins, despite there being no change in the capabilities of the underlying load. This highlights the need to ensure that various forms of demand response participation are compensated consistent with their contribution to system reliability. This will provide incentives for loads to offer the level of flexibility and reliability required by NYISO.

Our recommendation to compensate capacity suppliers based on the requirements they contribute to meeting, which is discussed earlier in this memo (see #2022-1), would improve incentives for large loads choosing whether to participate as SCRs or via another participation model (such as NYISO's DER program or as a behind-the-meter resource). NYISO should also consider how the requirements of its various load participation models align with the expected characteristics of large loads included in the 2024 RNA.

E. Comments on Need for Seasonal ICAP Market and Accreditation

The 2024 RNA finds that systemwide reliability margins will be significantly tighter in winter than summer within the next decade. This is driven primarily by projected growth in winter load due to electrification and unavailability of many pipeline gas-dependent generators in peak winter conditions. Hence, it is critical for the wholesale markets to provide incentives to invest in resources that help to address winter reliability concerns.

Our 2023 State of the Market report identified shortcomings in NYISO's capacity market design that will become problematic as winter reliability risk emerges. These include the following:

- Seasonal prices and capacity accreditation factors (CAFs) may fail to reflect reliability needs due to the annual process for setting key market parameters.
- Modeling improvements are needed in the IRM study to consider the system's ability to maintain energy adequacy during severe winter cold events.

Hence, we recommend that the NYISO establish seasonal capacity requirements, CAFs, and demand curves (Recommendation #2022-2) and improve resource adequacy modeling and capacity accreditation, especially the aspects related to winter reliability (Recommendation #2021-4).

F. Conclusions and Recommendations

NYISO's capacity market design should be aligned with the planning needs of the system, so that market participants have efficient incentives to contribute to system reliability at the lowest cost and to avoid the need for regulated solutions. We recommend the following improvements to the NYISO markets, considering the findings of the 2024 RNA:

Recommendations related to transmission security:

- Set capacity market ICAP requirements consistent with effective requirements from planning studies, so that the market correctly signals when capacity is needed to satisfy planning reliability requirements.
- Use appropriate assumptions in the load forecast for transmission security analysis related to loads participating in both peak-shaving and emergency demand response programs.
- Compensate all capacity suppliers based on the requirements they contribute to meeting (#2022-1) and establish transmission security demand curves that reflect the marginal value of surplus capacity when requirements are set by TSL-floors (#2023-4).
- Implement more granular capacity zones and a dynamic process for updating the zones to address locational capacity needs such as those identified in New York City (#2022-4).
- Improve transparency regarding the principles or targeted level of conservatism used when selecting assumptions whose values are not prescribed by criteria in transmission security analysis.

Other Recommendations:

- Consider how the requirements and incentives provided by demand response participation models efficiently incentivize and value flexible load participation;
- Establish seasonal capacity requirements, CAFs, and demand curves (#2022-2) and improve resource adequacy modeling and capacity accreditation, especially the aspects related to winter reliability (#2021-4).