UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc	**)**	**Docket No. ER22-772-000**

MOTION TO INTERVENE AND COMMENTS OF THE NYISO MARKET MONITORING UNIT

Pursuant to Rules 212 and 214 of the Rules of Practice and Procedure of the Federal Energy Regulatory Commission, 18 C.F.R. §§ 385.212 and 214 (2019), Potomac Economics moves to intervene and comment on the New York Independent System Operator's ("NYISO's") filing on January 5, 2022 in the above captioned proceeding. NYISO proposed changes to its buyer side mitigation ("BSM") rules that would exclude from mitigation review resources that satisfy the goals of New York's Climate Leadership and Community Protection Act ("CLCPA"). NYISO also proposed to adopt a marginal capacity accreditation market design and to revise its rules for translating the reference price used in its ICAP demand curves to UCAP terms. Taken as a whole, NYISO's proposal is a major update to its capacity market design. These comments discuss the advantages of NYISO's proposed changes and why they should be approved as a coherent whole.

Potomac Economics is the Market Monitoring Unit ("MMU") for the NYISO. In this role, we are responsible for monitoring and evaluating the performance of the NYISO's capacity, energy, and ancillary services markets. We also are responsible for recommending market

design changes to improve the performance of the markets and evaluating design changes proposed by the NYISO or market participants. As the MMU, Potomac Economics has a unique responsibility to ensure the efficiency and integrity of the NYISO power markets. Potomac Economics' interests, therefore, cannot be adequately represented by any other party.

I. NOTICE AND COMMUNICATIONS

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II. INTRODUCTION AND SUMMARY

NYISO developed its proposal through its "Comprehensive Mitigation Review" stakeholder process during 2021. NYISO discussed each element of the proposal at numerous stakeholder meetings and responded to feedback and concerns. It hosted discussions of alternative market design concepts, such as "average" capacity accreditation, before developing a final proposal. The combined proposal was approved by NYISO's Management Committee with an 82 percent stakeholder vote in favor on November 17, 2021. As NYISO's MMU, we worked closely with NYISO on market design aspects of the proposal and participated actively in the stakeholder process.

The proposed changes to BSM rules remove the risk of mitigation for resources that support legitimate state policies. This may increase the risk that some price suppression below competitive levels will occur. Hence, it is important to ensure that the capacity market maintains the ability to attract and retain resources that are needed for reliability. The proposed changes to capacity accreditation will improve incentives to retire surplus capacity that is not needed for reliability and invest in capacity that complements policy-sponsored resources. This will reduce the chance that state-sponsored entry will lead to prolonged surpluses of overrated capacity that discourages entry of more valuable resources.

NYISO's proposal to use marginal capacity accreditation is a major improvement to its capacity market rules. A marginal approach will pay resources based on their expected availability at times when reliability is most threatened. Marginal capacity values will naturally change over time as the resource mix and needs of the system change. This will appropriately align capacity payments with the incremental reliability impact that an investment or retirement decision would have on the system. Marginal capacity payments provide signals to invest in the most efficient mix of clean energy resources, build or maintain additional resources that are needed for reliability, and retire the surplus generators that provide the least reliability benefit.

We recommend that the Commission accept NYISO's proposal as a whole. The proposed changes to BSM rules remove the risk of mitigation for clean energy resources, while the remaining proposed changes enable all capacity suppliers to be appropriately compensated for the value they provide. These proposals constitute a capacity market design framework that can adapt to impacts of climate policy and maintain reliability efficiently and at reasonable cost to consumers. Adoption of this framework now will provide clarity to investors on the direction of the capacity market while allowing NYISO time to develop implementation details.

Section III of these comments discusses why NYISO's proposed changes to the BSM rules and the accreditation methodology are reasonable and strike an appropriate balance between accommodating legitimate public policy investment and ensuring reasonable wholesale prices. Section IV discusses why the proposed application of marginal capacity accreditation and the changes to demand curve reference point translation are reasonable. Section V discusses why it is critical for the changes to be reviewed and accepted as a single proposal.

III. NYISO'S PROPOSED CHANGES TO BSM RULES REASONABLY BALANCE COMPETING INTERESTS

A. NYISO's Proposal Balances State Jurisdiction and Competitive Markets

Buyer Side Mitigation rules must appropriately balance between competing objectives. Previous Commissions and decisions of the Supreme Court and circuit courts have acknowledged the Commission's need to balance between two competing priorities: (a) to ensure just and reasonable wholesale rates and (b) to respect the jurisdiction of states to control their generation mix.[1]

NYISO's proposed tariff changes are designed to accommodate the state's ability to pursue legitimate policy objectives. They would exclude from BSM review resources that are

[1] For example, the Commission denied a complaint proposing that it impose a renewable exemption in ISO New England before the sloped demand curve was implemented there, but the Commission clearly affirmed the need to balance appropriately: "…the Commission must balance two considerations. The first is its responsibility to promote economically efficient markets and efficient prices, and the second is its interest in accommodating the ability of states to pursue other legitimate state policy objectives." 142 FERC ¶ 61,108 at P 35. The Commission continued to apply this balancing principle after ISO New England adopted a sloped demand curve, ordering the ISO to implement a renewable entry exemption. In reviewing challenges to Commission orders requiring the application of the renewable entry exemption in ISO New England, a three-judge panel of the Court of Appeals for the Fourth Circuit agreed that it is appropriate for the Commission when setting a just and reasonable rate to balance the price suppression concerns against its stated intention to accommodate state policy decisions related their generation mix: '…the Commission "reasonably acted to balance competing interests" by "mak[ing] the judgment that encouraging renewable energies was less important than allowing such out-of-market entrants to depress capacity prices." NEPGA, 757 F.3d at 295. Although we deferred to FERC's decision "to decline a categorical mitigation exemption," id., we never held that the Commission must always weigh encouraging renewable energies as less important than preventing price suppression." See NextEra Energy Resources, LLC, et al. v. FERC, No. 17-1110 (D.C. Cir. Jul. 31, 2018).

required by the CLCPA or that clearly contribute to its goals. Existing BSM rules would still apply to resources that are not required by state policy. For example, projects that include conventional thermal generation, fuel cells powered by fossil fuels, and HVDC transmission projects that do not qualify for the state's 'Tier 4' program would all remain subject to BSM evaluation. Hence, NYISO's proposed changes would retain protections against the exercise of buyer-side market power, while allowing the state to pursue legitimate policy objectives.

To balance between deference to state policy and competitive markets, it is appropriate to consider the likely market impact of proposed tariff changes. NYISO's proposal is unlikely to lead to prices that are suppressed substantially below prices that would occur under the current rules. In the near term (prior to 2025), its impact on market prices will be small relative to the status quo. In the long term, existing market rules and NYISO's proposed capacity accreditation changes will encourage adaptation to policy-driven supply changes. Together, these changes will allow the capacity market to efficiently attract and retain resources that are needed for reliability. The following subsections discuss these points.

B. Near-Term Additional Price Suppression Is Likely to be Small

While NYISO's proposed tariff changes will reduce the risk of mitigation for individual project developers, they are unlikely to have a major near-term impact on market prices relative to existing rules. NYISO's existing BSM rules already include multiple avenues to avoid an offer floor, including the Renewable Energy Exemption, Competitive Entry Exemption, Part A Test and Part B Test. In the past two years, 1,026 MW of policy-sponsored resources that would qualify as "Excluded Resources" under NYISO's proposal have been exempted from offer floors under the current rules. Offer floors have been applied to just 85 MW of policy resources.

Further, while state policy supports entry of new capacity, it has also targeted large reductions of other capacity. In the past three years, over 3 GW of capacity in New York has

been forced to retire by state actions, including 2 GW of nuclear in the mitigated capacity zones. To comply with other state actions, an additional 1.4 GW of combustion turbines in the mitigated capacity zones plan to retire or switch to winter-only status between 2023 and 2025. In considering the extent to which out-of-market entry will affect the market by suppressing prices, we believe it is important to also consider out-of-market exit. Considering these two out-of-market actions together, we do not find that New York State's policies will lower prices below levels that would support future market-based investment.

C. Efficient Markets Offset Risk of Price Suppression in the Long Term

In the long term, the capacity market will produce efficient outcomes if it encourages market participants to adapt to policy-driven supply mix changes. The capacity market remains the primary mechanism for satisfying the resource adequacy requirements in New York. It is critical to ensure that the capacity market will continue to motivate new investment when needed for reliability and efficient retirement in regions with excess capacity.

NYISO's marginal capacity accreditation proposal will provide signals to efficiently resolve capacity surpluses that emerge when state-sponsored resources enter the market. The capacity market is designed to encourage retirement of existing units when there is surplus capacity. In order for this process to function effectively, capacity payments to each resource must accurately reflect how much reliability would be lost if that resource were to retire. This is equivalent to its marginal capacity value. If an existing resource is overpaid relative to its marginal value, it may choose to remain in the market and perpetuate a surplus when it would be more efficient for the resource to retire.

For example, suppose that in a high-renewable system, fossil units with long startup lead times are often unavailable during tight hours that occur due to variations in renewable output. These inflexible units would have lower marginal capacity values than more flexible resources.

As renewable generation expands, it may be efficient for inflexible resources to retire and be replaced by other technologies. However, if capacity payments exceed marginal value, the incentive to do so will be muted. In this case, weak incentives for retirement could lead to retention of surplus inflexible capacity, preventing prices from rising to levels that would motivate investment in more valuable resources.

Adoption of a marginal accreditation framework will also reduce the potential for excessive price suppression by encouraging efficient levels of investment. Capacity credit that is not aligned with marginal value provides incentives for overinvestment in resources with diminishing reliability value. This is because each new entrant is compensated as if it provides a greater improvement in system reliability than it actually provides. Hence, in the absence of marginal accreditation, the profit-maximizing level of investment for project sponsors may exceed the efficient level of investment. This overinvestment will reduce the incentive to invest in higher-value resources that are truly needed for reliability.

To the extent that NYISO's proposal raises the risk of higher transitory surpluses and associated periods of inefficiently lower prices, efficient capacity market outcomes will be maintained by recognizing this risk in NYISO's quadrennial Demand Curve Reset (DCR) process. The purpose of the DCR is to estimate the level of capacity market revenue needed to encourage investment in a new peaking facility when additional reliability is needed, which is then used to anchor NYISO's capacity market demand curves. This process includes a detailed review of the cost of capital applicable to investment in a merchant generation facility in New York. Any reliable market data indicating that investors require a higher level of return for merchant generation in New York can and should be considered in the DCR. NYISO's current tariff already requires it to consider such factors. Hence, increasing risk associated with future revenues must be reflected in the DCR.

The next DCR process will take place primarily in 2024 and establish demand curves that take effect in 2025, providing time for the financial market implications of NYISO's proposal to emerge. NYISO's tariff requires it to retain an independent consultant to study and recommend DCR parameters. The consultant's recommendations and NYISO's final selection of parameters are subject to rigorous review and feedback from stakeholders and the MMU. This process will ensure that risks related to price suppression are considered in an open and transparent manner in which suppliers and consumers are represented.

IV. PROPOSED CHANGES IN CAPACITY ACCREDITATION AND THE ICAP REFERENCE PRICE TRANSLATION ARE EFFICIENT AND REASONABLE

A. Overview of Marginal Capacity Accreditation

In its filing letter, NYISO describes marginal capacity value as the incremental reliability benefit provided by the next unit of capacity. An equivalent definition is that a resource's marginal capacity value is its expected availability to provide energy or reserves when the system is at risk of load shedding. This value depends on (a) the timing of the system's hours of greatest need and (b) the factors that affect the physical availability of the resource in those hours. Marginal capacity values will therefore change as the needs of the system change.

The series of charts in Appendix A illustrates this concept using a single hypothetical summer day. Each chart has the same level of total unserved energy (megawatt-hours of load that cannot be served because sufficient generation is not available), but the timing of unserved energy differs in each chart:

- In a system with relatively low solar penetration (Chart A-1), critical hours occur in late afternoon, when solar output is relatively high.

- With higher solar penetration (Charts A-2 and A-3), there is abundant generation in the afternoon and the timing of critical hours shifts towards the evening. The

marginal value of solar falls because additional solar generation provides less reliability benefit when critical hours mostly occur in the evening.

- This trend reverses in Chart A-4, where the marginal value of solar increases if it is paired with battery storage. This is because incremental solar output in the afternoon allows more storage capacity to be reserved for the critical evening hours.

As described earlier in these comments, the same principles apply to other types of generation, such as long-lead time resources. As the operating needs of the system become more variable and uncertain with the rapid increase in intermittent output, tight conditions that threaten reliability are likely to arise that are much more difficult to forecast more than 4 hours in advance. Under these conditions, long-lead time resources that do not run frequently will provide diminishing levels of reliability to the system. These changes must be reflected in the capacity accreditation framework to ensure that the market will continue to perform well.

NYISO proposes to evaluate all resource types in each of its capacity market localities and will update marginal capacity values annually so that they accurately reflect the mix of resources and other system conditions. The following subsections discuss why marginal accreditation is consistent with the NYISO's market design and will be both fair and efficient.

B. Marginal Accreditation is Compatible with NYISO Market Design

Marginal capacity accreditation is consistent with the economic principles that underlie NYISO's wholesale market design. All of NYISO's major market products are priced based on marginal value and marginal cost. For example, sellers in the energy market are paid a location-based marginal price (LBMP), which reflects the marginal cost of serving load at that location. Sellers in the reserve market are paid the shadow price (marginal cost) of satisfying the applicable reserve requirement. In each case, sellers are paid the system's cost of procuring an incremental amount of the service they provide. This approach is designed to ensure that each

system need (e.g. for energy, reserves, or capacity) is satisfied while encouraging efficient behavior, providing the best value to consumers.

In NYISO's spot capacity market, all sellers are paid a marginal price based on the capacity market demand curves. This price represents the system's willingness to pay for the amount of incremental reliability provided by an additional unit of unforced capacity (UCAP). Hence, it is appropriate to determine capacity credit values such that an additional unit of UCAP from any source provides the same amount of incremental reliability. This is accomplished by a marginal accreditation approach.

C. Marginal Accreditation is Both Fair and Efficient

NYISO's proposal to use marginal accreditation is fair because it does not arbitrarily discriminate among capacity suppliers. Under a marginal approach, all suppliers are compensated based on their expected ability to improve reliability by providing energy or reserves during critical system conditions. Put another way, the loss of a unit of accredited UCAP from any two resources at the same location would have the same impact on reliability. This provides a common and objective framework for evaluating the reliability contributions of diverse resources.

Importantly, NYISO's proposal applies a marginal accreditation approach to *all* resources. New and existing resources with the same marginal reliability benefit would be assigned the same capacity credit. The proposal is not restricted to emerging technologies such as intermittent renewables or energy storage. For example, we anticipate that adoption of a marginal approach will lead to changes in the capacity credit of several types of conventional generators that are widespread in New York, such as inflexible units with long startup lead times and gas-only generators without dual fuel capability. Capacity credit of some generator types

may be unaffected, but only if their capacity credit is found to already be consistent with marginal value.

Marginal capacity accreditation is efficient because it aligns each resource owner's economic incentives with the reliability impact of its decisions. It will provide signals to invest in or retain resources that complement the rest of the resource mix, and it will avoid investment in resource types that are oversaturated.

For example, consider gas-fired generators that lack firm fuel supply or backup fuels. Often, only a portion of these resources are available during extreme cold weather when the gas transport system is constrained. If reliability studies indicate there is risk of load shedding during extreme cold events, we would expect marginal value of these resource to be low – indicating that some could be retired with little impact on reliability. This would provide an incentive to retire excess gas-only generation, replace it with resources that are more reliable in winter, or add dual fuel capability to existing units. If capacity credit does not reflect marginal value, the capacity market provides weak incentives to take these actions.

For another example, consider energy storage. It is well known that the capacity value of limited-duration storage resource declines as their penetration increases. Marginal accreditation will provide incentives to choose longer-duration storage (which is more costly but more reliable) over shorter-duration storage when the value of additional short-duration storage is low. It may also provide incentives to pair renewables with storage, increasing their capacity value.

Marginal capacity value may change from year to year and is not locked in for a project's life. The prospect of future changes in capacity value requires investors to consider how their project adds to reliability under potential future conditions. This appropriately assigns the risk of a project's capacity value to investors who have the ability to choose between alternative projects, rather than to consumers. Since market participants respond to incentives, it is

reasonable to expect that investors will favor projects with higher expected capacity value and devise ways to hedge against oversaturation. Likewise, it is reasonable to expect that investors will ignore a project's marginal value if the market pays them to build or retain resources with low value.

Importantly, marginal accreditation is efficient in a context where public policy plays a key role in investment decisions. Market signals provide valuable information to developers and policymakers for evaluating which policy-sponsored projects provide the most wholesale benefits. New York's programs to encourage renewables and storage have consistently been designed in a way that makes use of competition and exposes investors to wholesale market risks, including capacity market risk. Marginal accreditation factors will give technologies and locations with better reliability value an advantage in solicitations for clean resources by offsetting the costs they must recover from the state compared to other resources. Hence, it will facilitate more efficient development of clean resources that will support the reliability of the system.

We performed an analysis to simulate the potential long-term impacts of alternative capacity accreditation methodologies on market outcomes, which we presented to NYISO's Installed Capacity Working Group on November 2, 2021.[2] Our analysis simulated capacity credit and investment/retirement decisions by 2030, assuming that investors choose the most profitable projects considering both wholesale market revenues and state subsidies. We assumed that the state would provide payments in excess of wholesale revenues that are needed to achieve its renewable and storage targets by 2030, modeled after existing programs. We compared

[2] See "NYISO Capacity Accreditation: Consumer Impact Analysis", available here.

outcomes under a marginal accreditation approach to status quo capacity accreditation rules or an approach based on the "average ELCC" method.

Our analysis demonstrates that the outcomes under a marginal approach are more efficient than under either the status quo or average approaches. In particular, we observed:

- Compared to the status quo, consumers save approximately $176 to $350 million per year by 2030 from the marginal accreditation approach.
- Compared to an average accreditation approach, consumers save $93 to $226 million per year from the marginal accreditation approach.

Hence, the marginal approach will result in more efficient investments in renewables and storage to satisfy policy targets. The marginal approach scenario exhibited a better balance of wind and solar additions and increased investment in longer-duration storage compared to the other scenarios. Greater efficiency of clean energy investments was a major source of consumer savings under the marginal approach.

Although actual future market outcomes will inevitably differ from any theoretical model, our analysis suggests that marginal accreditation provides incentives for efficient investment, while the existing accreditation rules or an 'average' accreditation approach do not. The longer-term benefits are expected to be much greater because: (a) we analyzed only a subset of resource classes; and (b) the level of investment needed to fully satisfy CLCPA objectives will be much larger than the intermediate (i.e., 2030) targets we modeled.

D. NYISO's Proposed Changes to its ICAP/UCAP Reference Price Translation are Reasonable

NYISO proposes to convert the ICAP reference point price to a UCAP reference point using the derating factor of the peaking technology. As we explain below, the current rules will

inefficiently inflate the UCAP reference point as intermittent resources enter the system. Hence, these proposed changes will improve the efficiency of capacity market prices.

The capacity market demand curves are designed to attract new investment when supply is at or below reserve margin requirements. The ICAP reference point is a key parameter of the demand curve. It is set so that a hypothetical new peaking plant would earn revenues equal to its cost of new entry when supply is equal to the tariff-prescribed level-of-excess (e.g., slightly above the reserve margin requirement). The reference point also affects the price level at all other points on the demand curve.

Because suppliers are paid based on their UCAP, the reference point is converted to UCAP terms using an ICAP-to-UCAP derating factor – a higher derating factor results in higher UCAP capacity prices. NYISO currently uses the average derating factor of all resources in the locality for this translation. To the extent that this differs from the derating factor for the peaking plant, this can result in revenues that are higher or lower than the adequate revenue level for the peaking plant. Performing the translation using the derating factor of the peaking technology, as NYISO proposes, will ensure that capacity prices at the level-of-excess are accurately aligned with the peaking plant's revenue requirement as intended.

In the past, the inaccuracy inherent in calculating the reference price translation based on the zonal average derating factors has been modest because the derating factors for most conventional resources are not substantially different than the derating factor for the peaking plant. However, this is not true for intermittent resources whose derating factors are many times larger than those of the peaking plant. Therefore, the proposed changes will be critical as the share of renewable capacity with higher derating factors increases, especially if NYISO's proposed capacity accreditation changes are adopted. For example, if the peaking unit's derating factor is 4 percent and the zonal average derating factor is 52 percent (reflecting a large

proportion of renewable capacity), the UCAP reference point would be inflated by 100 percent above the appropriate level.[3] NYISO's proposed changes will keep the UCAP reference point anchored at levels consistent with its intended function even as the system's average derating factor increases due to an increasing penetration of intermittent generation.

V. THE COMMISSION SHOULD ACCEPT NYISO'S PROPOSAL IN FULL

NYISO's proposal is coherent as a whole. The proposed changes to the BSM rules remove barriers to participation of state-sponsored resources in the capacity market. The remaining changes enable the market to accurately signal the value of all resources and facilitate the efficient integration of the sponsored resources. This involves efficient investment in complementary resources and retirement of unnecessary resources. Without these improvements, the proposed changes to BSM rules alone would be more likely to result in a chronic surplus of capacity that will undermine the market's ability to efficiently satisfy NYISO's resource adequacy needs. Such an outcome would discourage new investments that more efficiently support the system's reliability needs and increase the cost of attracting new entry when it is needed for reliability.

It is important to approve these changes soon because this will provide additional certainty about the direction that capacity accreditation rules and the capacity market more broadly will take in the future. There is a large difference between NYISO's proposed marginal approach and alternatives such as retaining status quo rules or adopting an average accreditation approach. Even if specific capacity value results are not yet known, ruling out these alternatives in favor of a marginal approach considerably reduces the range of likely outcomes for

[3] If the ICAP reference value is $10 per kW-month and the peaking unit has a 4 percent derating factor, the UCAP reference point would be equal to $10 / (1 – 0.04) = $10.42. If an average derating factor of 52 percent is used to translate the reference price, the UCAP reference point would be equal to $10 / (1 – 0.52) = $20.83.

developers. Major investment decisions are being made now as New York progresses towards its CLCPA goals. If the Commission determines that the principles and framework in NYISO's proposal constitute a reasonable approach, there is value in approving them now because it will provide essential information to investors and asset owners. This is important because the expectations of these entities will affect the long-term decisions they are making today and in the near future.

VI. CONCLUSION

For the reasons discussed in these comments, we respectfully recommend that the Commission accept NYISO's proposed tariff changes. The proposal reasonably balances state public policy objectives with the need for competitive capacity markets. This was recognized by NYISO's market participants who voted 82 percent in favor of the proposal. Clarity on these critical issues will allow NYISO to immediately begin developing implementation details and provide a much-needed sense of direction for market participants regarding the future of NYISO's capacity market.

Respectfully submitted,

/s/ David B. Patton

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January 26, 2022

APPENDIX A: CONCEPTUAL ILLUSTRATION OF MARGINAL CAPACITY VALUE

Chart A-1: 500 MW Solar

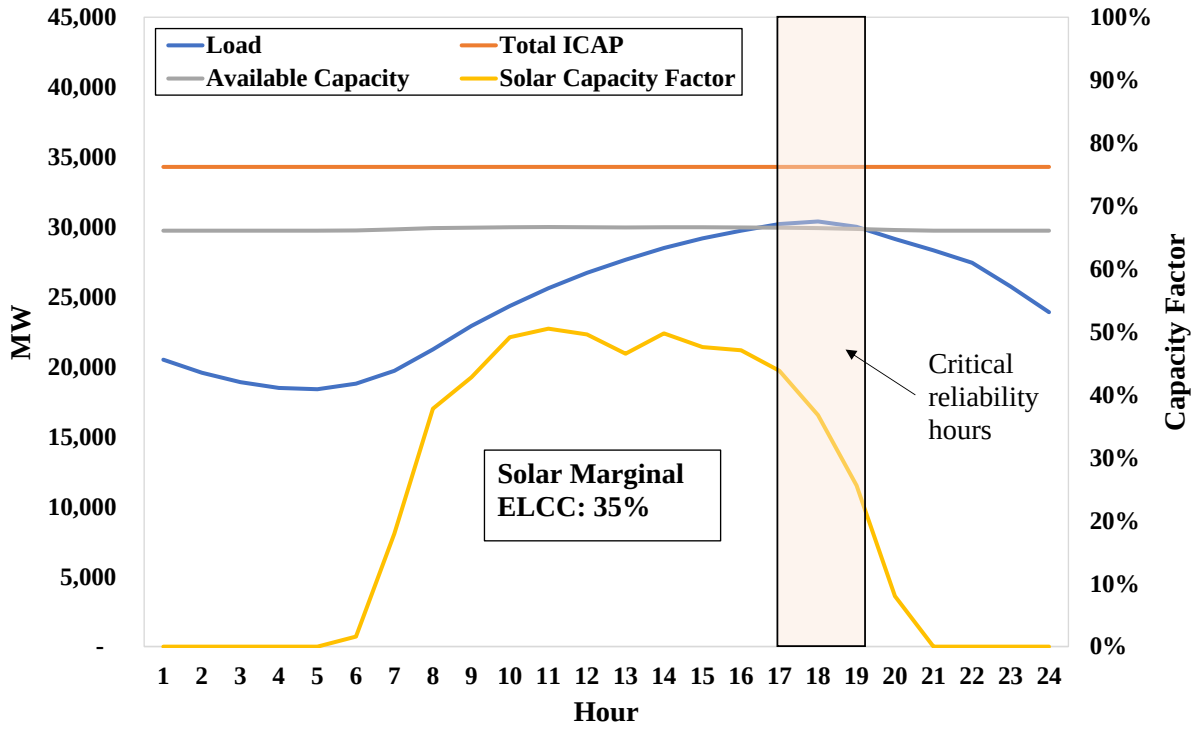


Chart A-2: 5,000 MW Solar

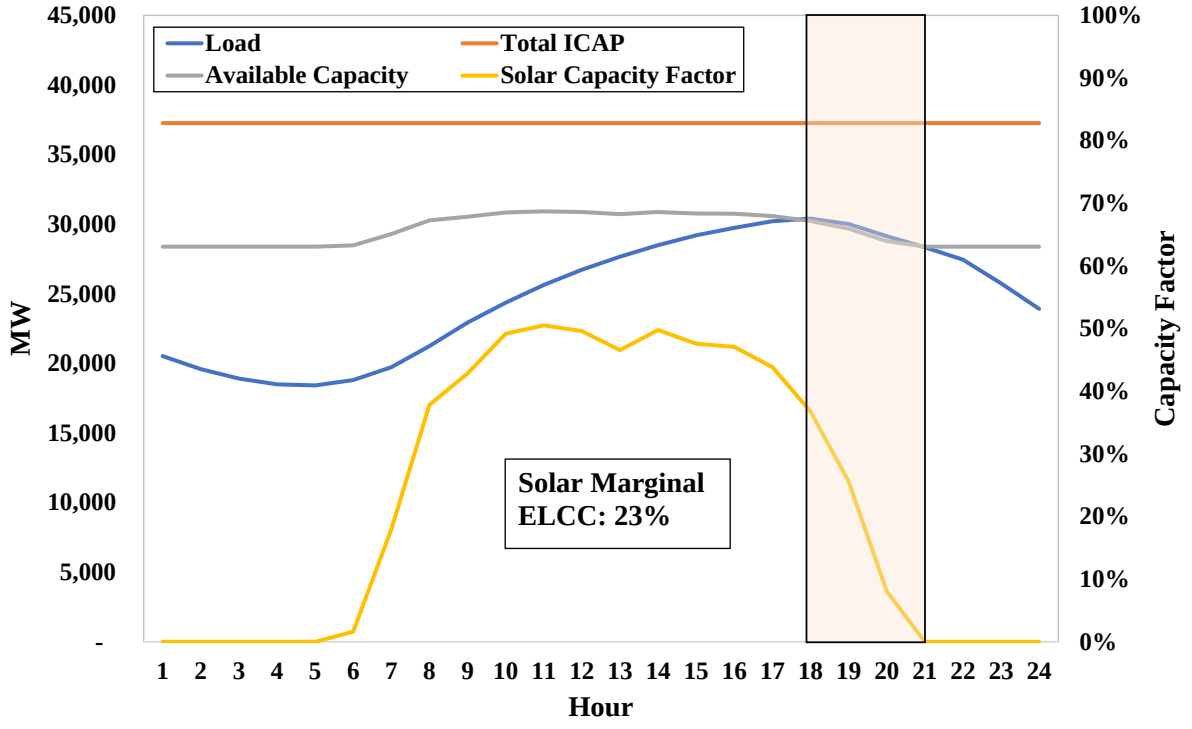


Chart A-3: 10,000 MW Solar

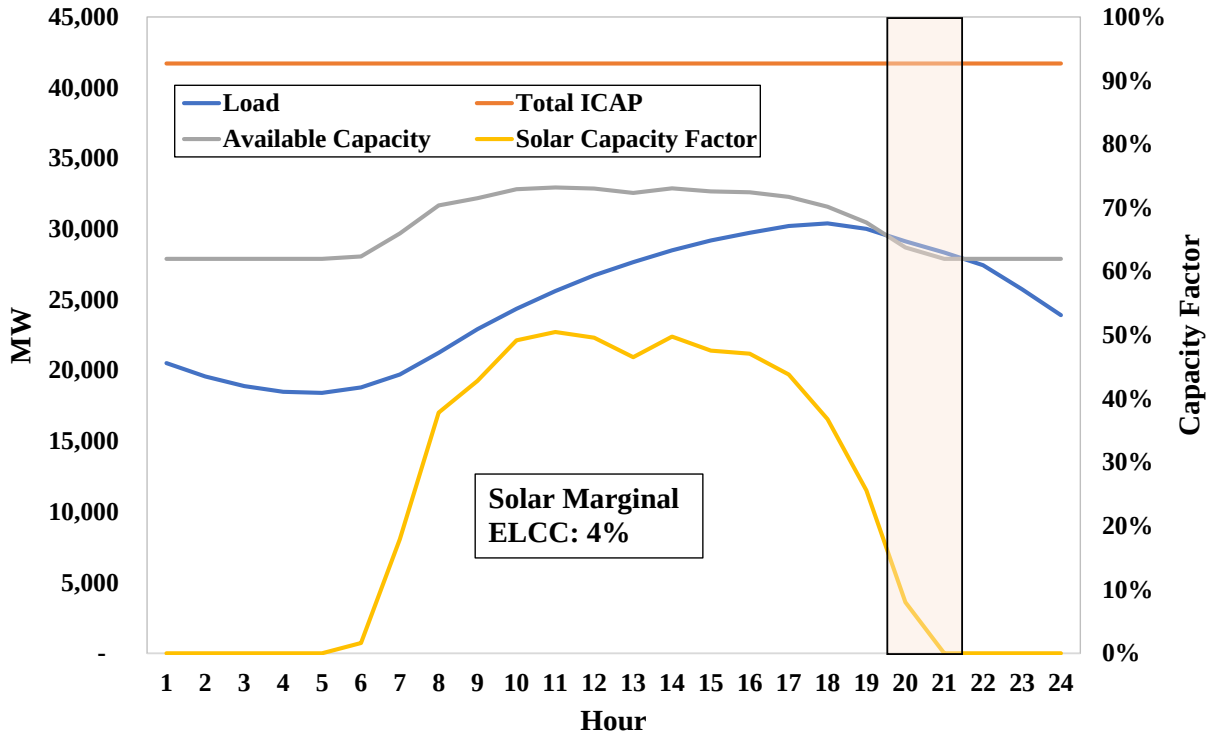
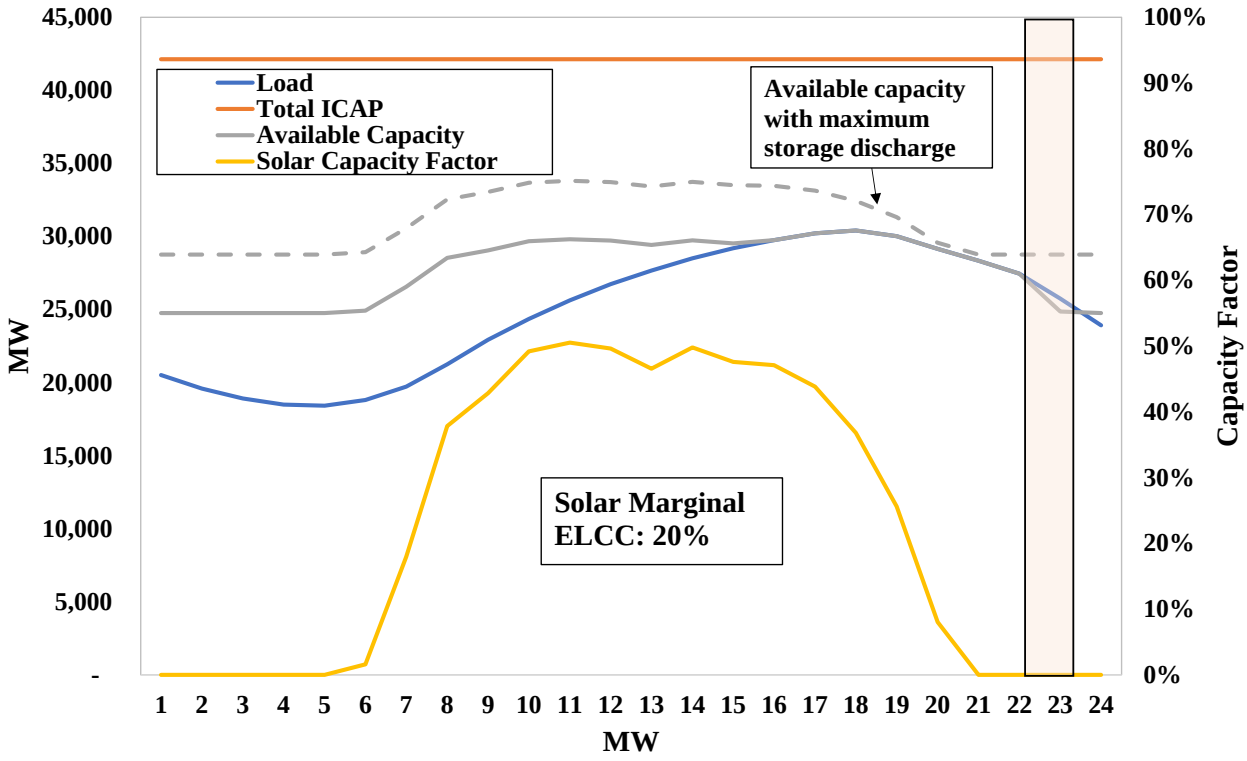


Chart A-4: 10,000 MW Solar + 4,000 MW Energy Storage



CERTIFICATE OF SERVICE

I hereby certify that I have this day e-served a copy of this document upon all parties listed on the official service list compiled by the Secretary in the above-captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated this 26th day of January 2022 in Fairfax, VA.

/s/ David B. Patton

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