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Locational Minimum Installed Capacity Requirements Determination Process

1. Introduction

1.1. This document describes the ~~process[1]~~ process that NYISO follows to determine the Locational Minimum Installed Capacity ~~Requirements[2]~~Requirements (LCRs) for the Localities, presently Load Zone J – New York City~~,~~ (NYC), Load Zone K – Long Island~~,~~ (LI), and the G-J Locality (Load Zones G, H, I, and J).[1]

2. Initial Conditions

~~2.1. The database available from the Installed Reserve Margin (IRM) study is used, adjusted to the IRM value approved by the NYSRC for the upcoming Capability Year.~~

~~2.2.~~2.1. ~~The~~ ~~Pursuant to Section 5.11.7 of the Services Tariff,~~ ~~t~~The NYISO shall identify whether the upcoming Capability Year includes a Triggering Resource (as defined in Section 2.20 of the Services Tariff) prior to determining the LCRs for such Capability Year.

~~2.2.1.~~2.1.1. If the ISO has identified that a Triggering Resource exists for the upcoming Capability Year, the ISO shall determine two sets of LCRs for such Capability Year. The starting database for one set of LCRs shall be determined using the case resulting from the installed reserve margin (IRM) approved by the New York State Reliability Council (NYSRC) for such Capability Year. The starting database for the second set of LCRs shall be determined using the case resulting from the IRM approved by the NYSRC for such Capability Year except that the operational status of the Triggering Resource in the alternative case shall be the opposite of the operating status assumed in the case resulting from the IRM approved by the NYSRC. For example, if the case resulting from the IRM approved by the NYSRC modeled the Triggering Resource as in-service~~participating in the Installed Capacity (ICAP) market~~, the alternative case would model the Triggering Resource as out-of-service~~not participating in the ICAP market~~. The alternative case modifies only the operating status of the Triggering Resource; the operating status of all other resources will remain unchanged from the assumptions modeled in the case resulting from the IRM approved by the NYSRC. For a Capability Year that does not

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include a Triggering Resource, the NYISO will determine only one set of LCRs. The starting database for the LCRs will be the case resulting from the IRM approved by the NYSRC for the upcoming Capability Year.

~~2.3.~~2.2. For all LCR determinations, the NYISO ~~will use a~~ must satisfy the requirement of a Loss of Load Expectation (LOLE) that is the lesser of: (a) 0.100 event-days/year, and (b) the LOLE that results from the NYSRC Installed Capacity Subcommittee's adjustment to the IRM database representing the IRM approved by the NYSRC (specified with three decimal point precision). This LOLE is referred to as the "target LOLE~~."~~." For all LCR determinations, model runs occur with the applicable NYCA Minimum Installed Capacity Requirement set using the IRM approved by the NYSRC.

~~2.4. All NYISO runs under this process occur with the NYCA Minimum Installed Capacity Requirement set using the approved IRM.~~

~~2.5.~~2.3. ~~The~~For all LCR determinations, the NYISO will utilize LCR economic optimization software ("LCR software"), constructed as follows:

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$$Minimize:$$

$$Cost\ of\ Capacity\ Procurement = [Q_J + LOE_J] \times P_J(Q_J + LOE_J) + [Q_K + LOE_K] \times P_K(Q_K + LOE_K)$$

$$+[Q_{(G-J)} + LOE_{(G-J)} - Q_J - LOE_J] \times P_{(G-J)}(Q_{(G-J)} + LOE_{(G-J)})$$

$$+[Q_{NYCA} + LOE_{NYCA} - Q_{(G-J)} - LOE_{(G-J)} - Q_K - LOE_K] \times P_{NYCA}(Q_{NYCA} + LOE_{NYCA})$$

Subject to:

$$NYCA\ system\ LOLE \leq target\ LOLE$$

$$Q_{NYCA} = NYCA\ system\ peak\ load\ forecast \times (1 + NYSRC\ approved\ IRM)$$

$$Q_J \geq Q_{TSL(J)}$$

$$Q_K \geq Q_{TSL(K)}$$

$$Q_{(G-J)} \geq Q_{TSL(G-J)}$$

Wherein

$Q_J, Q_K, Q_{(G-J)}$ are the quantity of capacity, expressed in megawatts, required in J Locality, K Locality, and G-J Locality, respectively, which is the product of the Locality's non-coincident peak load forecast and the corresponding LCR values.

$Q_{TSL(J)}, Q_{TSL(K)}, Q_{TSL(G-J)}$ are the quantity of LCR floor restriction, expressed in megawatts, due to the transmission security limit for J Locality, K Locality, and G-J Locality, respectively.

Q_{NYCA} is the quantity of capacity, expressed in megawatts, required for NYCA, which is the product of NYCA system peak load forecast and the value of (1 + NYSRC approved IRM).

$LOE_J, LOE_K, LOE_{(G-J)}, LOE_{NYCA}$ are the quantity of level of excess condition, expressed in megawatts, for J Locality, K Locality, G-J Locality, and NYCA, respectively.

$P_J(Q_J + LOE_J), P_K(Q_K + LOE_K), P_{G-J}(Q_{(G-J)} + LOE_{(G-J)}), P_{NYCA}(Q_{NYCA} + LOE_{NYCA})$ are the price of capacity for the given quantity of capacity in J Locality, K Locality, G-J Locality, and NYCA, respectively (noting that the ICAP Demand Curve reset process calculates Net CONE at the level of excess condition).

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~~2.5.1.~~2.3.1. These equations are used to determine LCRs such that the cost of capacity is minimized, while at the same time holding unchanged the NYSRC approved IRM, maintaining an LOLE of less than or equal to ~~0.1000days/year~~the target LOLE, and maintaining capacity requirements greater than or equal to the applicable ~~Transmission Security Limit, the foregoing described herein~~transmission security limit (TSL) floor values.

~~2.5.2.~~2.3.2. The additional tables used to run the optimizer are appended to the applicable IRM database(s) referenced in ~~step~~ Section 2.1.1. The data and zonal capacity shifting specified in these tables will be consistent with those present in the final IRM database except for a Capability Year with a Triggering Resource. For a Capability Year with a Triggering Resource, the NYISO will also develop an alternative case reflecting the opposite operating status for the Triggering Resource than what was modeled in the case resulting from the IRM approved by the NYSRC. This alternative case will be used to develop a second set of LCRs as described in Section 2.1.1

~~2.5.3.~~2.3.3. ~~When~~For all LCR determinations, when identifying the price of capacity at the level of excess prescribed in Section 5.11.4(a) of the Services Tariff, cost curves established (a) in ~~a~~an ICAP Demand Curve ~~Reset Filing Year~~reset filing year will use the results of net Energy and Ancillary Services revenues determined in the quadrennial ICAP Demand Curve tariff processes and (b) in ICAP Demand Curve annual update years, all points on each cost curve will be determined by changing each point on the current Capability Year's cost curve to reflect the difference between the upcoming Capability Year's net cost of new entry (Net CONE) value and the current Capability Year's Net CONE value.

~~2.5.4. Transmission Security Limits are determined using the equations and inputs specified in the table below~~

2.3.4. For all LCR determinations, TSL floor values are determined based on the applicable modeled system for the Capability Year. The NYISO will present the TSL floor value calculation methodology and results to stakeholders as part of the LCR study process. ~~Illustrative~~ The equations and inputs for calculating the TSL floor values based on the methodology used for the 202~~6~~5-202~~7~~6 Capability Year are included in Table 1 below.

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For a Capability Year that includes a Triggering Resource, the NYISO will provide TSL floor values for each of the two sets of LCRs required to be developed (see Section 2.1.1).

2.3.4.1. For all LCR determinations, the NYISO conducts a Bulk Power Transmission Limit study based on expected system conditions for the Capability Year, as an input to the TSL floor values calculation. The NYISO will present the Bulk Power Transmission Limit study to stakeholders as part of the LCR study process. For a Capability Year that includes a Triggering Resource, the Bulk Power Transmission Limit study will provide limits accounting for the different potential operating status assumption for the Triggering Resource as described in Section 2.1.1.

Table 1: ~~Illustrative~~ Inputs and Equations for ~~the 2026-2027 Capability Year~~ the 2025-2026 Capability Year TSL Floor Values

Transmission Security Limit Calculation	Units	Formula	G-J Locality	NYC	LI
Non-Coincident Load Forecast	MW	[A] = Given			
Coincident Load Forecast	MW	[P] = Given			
Bulk Power Transmission Limit	MW	[B] = Studied			
Net Flow Adjustment	MW	[N] = Study Assumption			
Offshore Wind	MW	[O] = Calculated			
UCAP Requirement	MW	[C] = [P]-[B]+[N]+[O]			
UCAP Requirement Floor	(%)	[D] = [C]/[A]			
5-Year Derating Factor	(%)	[E] = Calculated			
Special Case Resources	MW	[F] = IRM Study Assumption			
ICAP Requirement	MW	[G] = ([C]/(1-[E])) +[F]			
Transmission Security Limit	%	[H] = [G]/[A]			

~~2.6.~~2.4. The NYISO will present to stakeholders informational draft LCRs and accompanying preliminary input information, as available (such as the IRM Load forecast, bulk power transmission capability, derating factors, ~~Transmission Security Limit~~ TSL floor values, and Net CONE ~~Curves~~curves), in the 4th quarter of the calendar

year. This presentation will include discussion of the factors causing year-over-year changes in LCRs. For a Capability Year that includes a Triggering Resource, the NYISO will provide such information for each of the two sets of LCRs required to be developed (see Section 2.1.1).

3. LCR Case Adjustments

~~3.1. The NYISO will solve for the target LOLE. That is, the NYISO will use a Loss of Load Expectation (LOLE) that is the lesser of (a) 0.100 days/year and (b) the LOLE that results from the NYSRC Installed Capacity Subcommittee's adjustment to the IRM database (specified with three decimal point precision).~~

3.1. For all LCR determinations, ~~the NYISO will solve for~~ the target LOLE cannot be exceeded.

3.2. The NYISO will identify any material capability changes.

3.2.1. Material capability changes, as used in this process, means individual changes that would increase or decrease generation, CRIS MW, or transmission transfer capability by 200 MW or greater; provided, however, that the changes to the assumed operating status of the Triggering Resource in establishing an alternative case as described in Section 2.1.1 shall not constitute a "material capability change" for purposes of this Section 3.2.

3.2.2. Notify the NYSRC of any material capability changes.

3.2.3. If the NYSRC chooses to adopt the material capability change for the IRM, the same update will be made in the assumptions used by the NYISO to calculate the LCRs.

4. Determination of the Final LCR Values

4.1. Using the final LCR case, Net CONE ~~Curves~~curves, and ~~TSLs~~ TSL floor values, run the LCR software to determine unrounded LCRs. For a Capability Year that includes a Triggering Resource, the NYISO will determine two sets of LCRs as described in Section 2.1.1.

4.2. The LCR software returns results with multiple decimal point precision (i.e., unrounded LCRs). LCRs are set in 0.1 percentage point increments in order to be converted to Locational Minimum Unforced Capacity Values allocated to LSEs and

implemented in the ICAP ~~AMS~~ Automated Market System (AMS). Therefore, in order to set the LCR values, there may be a need to round those values up or down to the neighboring 0.1 percentage point.

4.3. If rounding is utilized, the NYISO will test these resulting values by running the GE Multi-Area Reliability Simulation software program (MARS) model and verifying the LOLE achieves the target LOLE value ~~in Section 2~~.

4.4. If necessary to achieve ~~at least~~ the target LOLE, the NYISO will adjust the LCR values in 0.1 percentage point increments. For such adjustments, the NYISO will first adjust Localities whose LCRs were rounded downward in ~~the step~~ Section 4.~~1~~2 above (e.g., a Locality whose LCR was rounded downward from 90.14% to 90.1%).

4.5. The NYISO will present the resulting LCRs to the NYISO Operating Committee. For a Capability Year that includes a Triggering Resource, the NYISO will determine and present two sets of LCRs as described in Section 2.1.1.

4.6. The NYISO will post to its website the final LCRs, LCR report~~, Report, Transmission Security Limits~~ TSL floor values, Net CONE ~~Curves~~curves, and other applicable supporting data for the upcoming Capability Year. F For a Capability Year that includes a Triggering Resource, the NYISO will determine and present two sets of LCRs as described in Section 2.1.1.or a Capability Year that includes a Triggering Resource, the NYISO will provide such information for each of the two sets of LCRs required to be developed (see Section 2.1.1).