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Independent System Operator

Transmission Security Limit Floor Values: *Background*

Abdul Mohammed

NYISO

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Agenda

- Introduction to Transmission Security Limit (“TSL”) Floor Values
- TSL Floor Values: Methodology
- TSL Floor Values: Inputs and Timeline
- Bulk Power Transmission Limits

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Introduction

- TSLs are input constraints used in the NYISO's process for determining Minimum Locational Installed Capacity Requirements ("LCRs"). They take the form of "floors", to ensure the LCRs are set at or above the applicable TSL values
- Bulk power transmission limits are studied by NYISO Operations and considered in the process for determining TSL floor values
- TSL floors ensure resource requirements and market signals are aligned with Transmission System Planning criteria
- The NYISO establishes annual TSL floor values for Load Zone J, Load Zone K, and the G-J Locality

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TSL Floor Values Methodology

- **The TSL floor value methodology has been updated over the past few years to accommodate certain enhancements and changes in study inputs and maintain alignment with System Planning practices**
- **In general, the calculation methodology consists of the following four main steps:**
  1. Deduct transmission capability from the peak load forecast to establish the Unforced Capacity (UCAP) required to meet the forecasted load
  2. Apply the zonal 5-year equivalent demand forced outage rate (EFORd) to the UCAP requirements to convert into Installed Capacity (ICAP)
  3. Add Special Case Resources (SCR) MW to establish the ICAP requirements
  4. Divide the calculated ICAP requirements by the peak load forecast. This is the TSL floor value expressed as a percentage
- **Methodology changes over the past few years include:**
  - For the 2022 – 2023 Capability Year, in response to stakeholder feedback, the TSL floor values methodology was revised to align with the methodology for the Transmission Security Margin used in NYISO 2020 Reliability Needs Assessment (RNA) study
  - For the 2023 – 2024 Capability Year, derating factors were added to the TSL floor values methodology to align with the consideration of generator outages in the Transmission Security Margin assessment for the 2022 RNA study
  - For the 2024 – 2025 Capability Year, the TSL floor values methodology was updated to capture the impact of LI/NYC net flow assumptions in response to stakeholder feedback. In addition, the difference in accounting for the offshore wind derating factor was implemented due to the inclusion of an offshore wind resource in the 2024-2025 IRM study.

Additional info on historical TSL floor values methodology:
https://www.nyiso.com/documents/20142/33562316/22_10_04_ICAPWG_Transmission_Security_Limit_Calculation.pdf

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2024-2025 TSL Floor Values

- For the 2024-25 Capability Year, as discussed at the 9/5/2023 ICAPWG meeting, the NYISO implemented updates to the methodology for calculating TSL floor values. The NYISO presented final TSL floor values for the 2024-2025 Capability Year at the 10/26/2023 ICAPWG meeting.

https://www.nyiso.com/documents/20142/40834869/Final%20TSL%20FLoors%20-%20Capability%20Year%202024-2025.pdf

Transmission Security Limit Floor Calculation	Formula	G-J	NYC	LI	Notes
Load Forecast (MW)	[A] = Given	15,274	11,171	5,080	[1]
Bulk Power Transmission Limit (MW)	[B] = Studied	4,350	2,875	275	[2]
Net Flow Adjustment to Transmission Limit (MW)*	[N] = Study Assumption	275			[3]
Offshore Wind (MW)	[O] = Given			37.5	[4]
UCAP Requirement (MW)	[C] = [A]-[B]+[N]+[O]	11,199	8,296	4,843	
UCAP Requirement Floor	[D] = [C]/[A]	73.3%	74.3%	95.3%	
5-Year Derating Factor	[E] = Given	5.4%	4.5%	8.9%	[5]
Special Case Resources (MW)	[F] = Given	526.7	442.4	35.3	[6]
ICAP Requirement (MW)	[G] = ([C]/(1-[E]))+[F]	12,364	9,129	5,348	
ICAP Requirement Floor (%)	[H] = [G]/[A]	81.0%	81.7%	105.3%	

*See Bulk Power Transmission Capability Report for study assumptions and adjustment details

[1] 2024 Fall Load Forecast

[2] Based on 2024 Locality Bulk Power Transmission Capability Report

[3] LI Bulk Power Transmission Limit Adjustment

[4] Difference in Resource Adequacy and Transmission Security UCAP Valuation

[5] 5-year Market EFORd based on the generation mix in the 2024-2025 IRM FBC

[6] Modeled SCRs for 2024-2025

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Inputs and Typical Timeline

August	Special Case Resources – Based on IRM Final Base Case (FBC) Assumptions
September	Offshore Wind – Based on IRM FBC Assumptions
September	5 Year Derating Factor – Based on modeled fleet in IRM FBC
October	Bulk Power Transmission Limits
October	Peak Load Forecast – Fall Forecast for IRM FBC

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Bulk Power Transmission Limits (2024)

- The Bulk Power Transmission Limits are key inputs for the calculation of TSL floor values. It refers to the “import limits” via the transmission system into each of the 3 areas: G-J Locality, Load Zone J and Load Zone K
- As an example for the 2024 – 2025 Capability Year, the technical study started with adjusting the study case of Summer 2023 Operating Study to reflect expected system conditions for summer 2024
  - Summer 2023 Operating Study was completed in May 2023
- **G-J Locality & Load Zone K**: Generation schedules are developed for the N-1 outage case to maximize the respective Locality import capabilities, ensuring normal power flow ratings (N-1-0)
  - The bulk power transmission capabilities are studied respecting N-1-1 conditions (long term emergency [LTE] ratings)
- **Load Zone J**: Consistent with the NYSRC G.1-R1* Rule, generation and phase angle regulator schedules are developed for the N-2 case, ensuring normal power flow ratings (N-2-0)

*G.1-R1 Rule- “Certain areas of the Con Edison system are designed and operated for the occurrence of a second contingency.”

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Bulk Power Transmission Limits

- **NYISO Operations completed the 2024 Locality Bulk Power Transmission Capability Report in October 2023**
  - The Bulk Power Transmission Limits were updated from the 2023 Report locality limits to the 2024 Report locality limits

Locality	2024 Report Respected Outages	2023 Report Respected Outages	2024 Report Limit (MW)	2023 Report Limit (MW)	Delta
G – J	N-1 Outage applied (Athens – Van Wagner (91) 345 kV)	N-1 Outage applied (Athens – Pleasant Valley (91) 345 kV)	4,350	3,425	+925
Load Zone J	N-2 Outages applied (Dunwoodie - Mott Haven (72) 345 kV & Ravenswood 3 (980MW))	N-2 Outages applied (Dunwoodie - Mott Haven (72) 345 kV & Ravenswood 3 (980MW))	2,875* 3,855 – 980 Post-Contingency Limit – Largest Single Resource	2,875* 3,855 – 980 Post-Contingency Limit – Largest Single Resource	0
Load Zone K	N-1 Outage applied (Neptune HVDC (660MW))	N-1 Outage applied (Sprain Brook – East Garden City (Y49) 345 kV)	275	325	-50

  - The increase in the applicable limit for the G-J Locality is driven primarily by significant transmission changes due to Segment B of the "AC transmission project"
    - Addition of the Edic-Princetown 351 & 352 345 kV circuits and Knickerbocker-Pleasant Valley Y57 345 kV circuit
  - The methodology used to determine the Load Zone K limit was updated in this year's study to align with the approach used for Load Zone J
    - Loss of resource contingencies were considered for this year's study in both Load Zone J and Load Zone K

* Size of largest single resource is subtracted from the post-contingency limit to represent the need for making up for the loss of resource as part of the applicable contingency. This approach does not apply in other Locality limits due to the configuration of the respected contingencies.

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Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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Questions?

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