New York ISO
Independent System Operator

Transmission Security Limit Floor Proposal: Capability Year 2024-2025

Alexis Hormovitis

ICAP Market Operations

ICAPWG/MIWG

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Agenda

- Background on Transmission Security Limit (“TSL”) Floors
- Alignment between Planning and Capacity Market practices
- Discuss modifications to the TSL Floor for the 2024-2025 Capability Year
- Note: There is a 2024 Capacity Market Project for “Valuing Transmission Security”

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Background

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Background – Capacity Market Procurement

- TSLs are input constraints used in the LCR optimization process to ensure the LCRs are set at or above this 'floor'
- Transmission constraints are studied by NYISO operations and then considered as bulk power transmission capabilities in the calculation process
  - The bulk power transmission capabilities are studied respecting N-1-1 conditions
- Each of Zone J, Zone K, and Zones G-J has a TSL Floor

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Historic TSL Floor Methodologies

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Historic TSL Floor Methodologies

- **Historic TSL Floor Methodologies considered the Load Forecast, bulk power transmission capability and zonal EFORd as calculated by the IRM Study**
  - Used in 2019, 2020, and 2021 LCRs
- **During the 2022 LCR process, an Interim Methodology was used for TSL Floors in the LCR study to align with the Transmission Security Margin in the NYISO's 2020 Reliability Needs Assessment ("RNA") study**
  - The TSL Floor now considers Load Forecast, bulk power transmission capability and SCRs in each locality
    - This assumption is made because SCRs do not contribute to transmission security under normal transfer criteria

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2023-24 TSL Floor Methodology

- During the 2023 LCR setting process the TSL Floor was updated to utilize the Market EFORd, which considers the past 5-year historical performance, to be consistent with how the data is used in the market
- SCR MWs were added to the ICAP Requirements Calculation Step

Transmission Security Limit Calculation	Formula	G-J	NYC	LI	Notes
Load Forecast (MW)	[A] = Given	15,407	11,285	5,133	[1]
Bulk Power Transmission Limit (MW)	[B] = Studied	3,425	2,875	325	[2]
UCAP Requirement (MW)	[C] = [A]-[B]	11,982	8,410	4,808	
UCAP Requirement Floor	[D] = [C]/[A]	77.8%	74.5%	93.7%	
5-Year Derating Factor	[E] = Given	5.4%	4.5%	6.3%	[3]
Special Case Resources (MW)	[F] = Given	496.6	417.5	33.7	[4]
ICAP Requirement (MW)	[G] = ([C]/(1-[E]))+[F]	13,162	9,224	5,165	
ICAP Requirement Floor (%)	[H] = [G]/[A]	85.4%	81.7%	100.6%	

[1] 2023 Forecasted Load values from 2023 Fall Forecast
[2] Based on the Transmission Security Analysis performed for the 2023-2024 LCR Study
[3] 5-year Market EFORd based on the generation mix in the 2023-2024 IRM FBC
[4] Modeled SCRs are final; consistent with the 2023-2024 IRM FBC

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Peak Load Forecast Clarification

- **As shown in the detailed methodology calculation, when calculating the TSL Floors, the non-coincident peak forecasts consistent with the IRM base case for each locality are utilized**
  - It should be noted that the Reliability Planning Assessment utilizes the coincident peaks for each locality under the policy load forecast when calculating the Transmission Security Margin

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TSL Floor Methodology Considerations

- For 2024-2025 Capability Year

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TSL Floor Methodology Considerations

- Assumptions related to generator unavailability need to be developed to maintain reliability as the fleet transitions to intermittent energy resources
  - Offshore Wind in Zone K
- Accounting for the net flow assumptions between J and K

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Offshore Wind

- In this year's IRM study, an offshore wind unit is included in the model (PBC Assumptions Matrix)[1]
- Assumption for the availability of offshore wind is needed to calculate the 5-Year Derating Factor for Zone K
- In the IRM study, the offshore wind is modeled with an availability factor of 37.6% (62.4% derating factor) (new generator modeling in IRM)[2]
- In the Reliability Planning Transmission Security analysis, the offshore wind is modeled with an availability factor of 10% (90% derating factor)[3]
- Assumptions of offshore wind availability will continue to be assessed and revisited by NYISO Planning and Market Operations

[1]Installed Capacity Subcommittee Meeting No. 278 – June 28, 2023
[2]Installed Capacity Subcommittee Meeting No. 276 – May 3, 2023
[3]May 23, 2022, ESPWG

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Consideration for Adding Offshore Wind

- NYISO is recommending aligning with Reliability Planning and utilizing the 10% availability factor for purposes of Transmission Security Limit in Zone K
- When using the recommended availability factor (*i.e.*, 10%) for offshore wind in the TSL Floor calculation, there will be significant differences between the UCAP being counted in the IRM model and the UCAP accounted in the TSL Floor
- Therefore, the NYISO recommend reflecting the UCAP differences in the UCAP requirement in the TSL Floor calculation
  - This treatment is expected to be transitional and phased out in the future as NYISO gains operational experience and further alignment between Resource Adequacy and Planning assumptions

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Add Offshore Wind to ICAP Requirements

Offshore Wind ICAP MW	Availability Assumed in Transmission Security	Availability Assumed in Resource Adequacy	UCAP Difference
136	10.0%	37.6%	37.5

Transmission Security Limit Calculation	Formula	LI	Notes
Load Forecast (MW)	[A] = Given	5,090	[1]
Bulk Power Transmission Limit (MW)	[B] = Studied	325	[2]
UCAP Requirement (MW)	[C] = [A]-[B]	4,765	
Offshore Wind (MW)	[O] = Given	37.5	[3]
UCAP Requirement Floor	[D] = ([C]+[O])/[A]	94.4%	
5-Year Derating Factor	[E] = Given	8.9%	[4]
Special Case Resources (MW)	[F] = Given	35.3	[5]
ICAP Requirement (MW)	[G] = (([C]+[O])/(1-[E]))+[F]	5,304	
ICAP Requirement Floor (%)	[H] = [G]/[A]	**104.2%**	

[1] 2024 Preliminary Forecasted Load values
[2] Based on the Transmission Security Analysis performed for the 2023-2024 LCR Study
[3] Difference in RA and TSL UCAP Valuation
[4] 5-year Market EFORd based on the generation mix in the 2024-2025 IRM PBC
[5] Modeled SCRs for 2024-2025

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LI/NYC Net Flow Assumption

- **In the 2023 Locality Bulk Power Transmission Capability Report[1], net power flow from K to J is assumed in the base case**
  - This means the transmission capabilities for G-J and K are established with 625 MW flow G-I into K and 300 MW flowing out of K into J

- **Therefore, the TSL Floor for G-J needs to account for supply into K**
  - The capacity requirement (*i.e.*, TSL Floor) for K has captured the impact as the 300 MW I to K to J flow would take up some of the into K transmission capability, hence increasing requirement for K

[1]https://www.nyiso.com/documents/20142/35886565/2023-Locality-Bulk-Power-Transmission-Capability-Report.pdf/

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LI/NYC Net Flow Assumption (con'd)

- To properly account for the G-J requirement due to the net flow assumption, TSL Floor calculation should explicitly capture the adjustment for transparency
- Adding a simplified line item in the calculation table and detailed explanation in the study report

Transmission Security Limit Calculation	Formula	G-J
Load Forecast (MW)	[A] = Given	15,439
Bulk Power Transmission Limit (MW)	[B] = Studied	3,425
Net Flow Adjustment to Transmission Limit (MW)*	[J] = Study Assumption	325
UCAP Requirement (MW)	[C] = [A]-[B]+[J]	12,339
UCAP Requirement Floor	[D] = [C]/[A]	79.9%
5-Year Derating Factor	[E] = Given	5.4%
Special Case Resources (MW)	[F] = Given	526.7
ICAP Requirement (MW)	[G] = [C]/(1-[E]))+[F]	13,570
ICAP Requirement Floor (%)	[H] = [G]/[A]	87.9%

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

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TSL Floor Methodology Proposal

- For 2024-2025 Capability Year

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Proposed TSL Floor Calculation for 2024-25 Capability Period

- The following TSL Floor calculation reflects the implementation of the two enhancements

Transmission Security Limit Calculation	Formula	G-J	NYC	LI	Notes
Load Forecast (MW)	[A] = Given	15,439	11,303	5,090	[1]
Bulk Power Transmission Limit (MW)	[B] = Studied	3,425	2,875	325	[2]
Net Flow Adjustment to Transmission Limit (MW)*	[J] = Study Assumption	325			[3]
UCAP Requirement (MW)	[C] = [A]-[B]+[J]	12,339	8,428	4,765	
Offshore Wind (MW)	[O] = Given			37.5	[4]
UCAP Requirement Floor	[D] = [C]/[A]	79.9%	74.6%	94.4%	
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]+[O]/(1-[E]))+[F]	13,570	9,268	5,304	
ICAP Requirement Floor (%)	[H] = [G]/[A]	87.9%	82.0%	104.2%	

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

[1] 2024 Preliminary Forecasted Load values

[2] Based on the Transmission Security Analysis performed for the 2023-2024 LCR Study

[3] LI Bulk Power Transmission Limit Adjustment

[4] Difference in RA and TSL UCAP Valuation

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

[6] Modeled SCRs for 2024-2025

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Next Steps

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Next Steps

- Calculate Preliminary LCRs using 2024-2025 IRM PBC/relevant sensitivity cases (i.e. new EA modeling sensitivity case) and updated TSL Floors
- Present Preliminary LCRs to ICAPWG

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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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