IRM Topology Update & Oswego Complex Considerations

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Agenda

- Topology Recommendations for 2025-2026 Installed Reserve Margin (IRM) Final Base Case (FBC)
- Dynamic Limit Updates
- Oswego Complex Considerations

Topology Recommendations for 2025-2026 IRM FBC

- **In conducting a final review of the recommended topology for the 2025-2026 IRM FBC, NYISO identified certain dynamic limit updates that were not included in the 2025-2026 IRM Preliminary Base Case (PBC).**
- **The dynamic limit updates are driven by "firm projects" for summer 2025 in Con Edison's 2023 Local Transmission Plan (LTP)[1]**
  - The associated dynamic limits for such projects were previously discussed/reviewed at the Electric System Planning Working Group (ESPWG) and Transmission Planning Advisory Subcommittee (TPAS).[2]
  - Dynamic limits are consistent with most recent finalized Reliability Needs Assessment (2022 RNA) planning study assumptions for 2025-2026 Capability Year[3]
- **NYISO recommends adopting updates to the IRM FBC topology to reflect such dynamic limits.**

[1] Con Edison 2023 LTP - ESPWG 11/17/2023

[2] 2020-2021 Reliability Planning Process: Post-RNA Base Case Updates - 2/23/2021

[3] 2022 RNA Appendices – 11/15/2022

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Con Edison Dynamic Limit Updates

- Con Edison's summer 2025 LTP projects related to unbottling Staten Island capacity result in greater dynamic export limits out of Staten Island to Load Zone J (J to J3 reverse) of approximately 200-250 MW under certain generator availability conditions.
- The base export limit out of Staten Island to Load Zone J is unchanged at 815 MW.

Preliminary Base Case IRM 2025-2026

Staten Island Import Limits, Arthur Kill and Linden CoGen Units

Unit Availability				J_to_J3	
AK02	**AK03**	**LINCOG1**	**LINCOG2**	**Fwd**	**Rev**
A	A	A	A	315	**200**
U	A	A	A	315	**500**
A	U	A	A	315	**700**
A	A	U	A	315	**500**
A	A	A	U	315	**500**
Otherwise				315	815

Recommended for Final Base Case IRM 2025-2026

Staten Island Import Limits, Arthur Kill and Linden CoGen Units

				J_TO_J3	
AK02	**AK03**	**LINCOG1**	**LINCOG2**	**Fwd**	**Rev**
A	A	A	A	315	**425**
U	A	A	A	315	**700**
A	A	U	A	315	**750**
A	A	A	U	315	**750**
Otherwise				315	815

Oswego Complex - Background

- **The preliminary 2024 Reliability Needs Assessment (RNA) results presented at the July 25, 2024 ESPWG/TPAS meeting identified thermal overloads on certain elements in the latter years of the 10-year study horizon (2033-2034) under winter and summer peak load conditions (see Appendix for further details).[1]**
  - Updated results for the 2024 RNA were presented at the September 27, 2024 ESPWG/TPAS meeting reflecting the potential impacts of certain load flexibility on the above-referenced thermal overloads observed in the latter years of the study and noting that overloads observed in the winter are a function of certain limitations with the power flow case development for the 2024 RNA rather than representing specific transmission security constraints[2]
- **Overloads were identified near the Oswego Complex under N-1-1 conditions.**
- **The preliminary 2024 RNA results were raised at the September 4, 2024 ICS meeting along with a request to further assess the overloads identified near the Oswego Complex and consider whether modeling enhancements are warranted for the IRM study.**

[1] 2024 RNA Preliminary Results - July 25 2024 - ESPWG/TPAS
[2] 2024 RNA Final Results – September 27, 2024 ESPWG/TPAS

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Considerations for 2025-2026 IRM Study

- **The thermal overloads observed in the preliminary 2024 RNA study results occurred in latter years of the study (2033-2034) under significantly different system conditions (e.g., load requirements, resource mix, and topology) than those applicable for the 2025-2026 IRM study.**
  - For example, the peak loads assumed for 2034 in the preliminary 2024 RNA results are 2,000 MW higher in summer and 7,500 MW higher in the winter than the seasonal peak loads assumed in the 2025-2026 IRM PBC
  - The overloads observed in the preliminary 2024 RNA results are driven by assumed load increases in conjunction with assumed resource mix changes that resulted in reduced generation flexibility to simultaneously dispatch around overloads across the system
  - Updated results for the 2024 RNA identified potential resolution of the summer overloads by certain flexible load capability and noted that overloads observed in the winter are a function of certain limitations with the power flow case development for the 2024 RNA rather than representing specific transmission security constraints
- **The system conditions under which the overloads were observed in the 2024 RNA results are significantly different than the system conditions applicable for the 2025-2026 IRM study. As a result, it does not appear that any changes are needed to the modeling assumptions for the 2025-2026 IRM study**
  - Any reliability needs identified in the 2024 RNA will trigger the solution solicitation and evaluation procedures of the reliability planning process
  - Solutions for identified needs as well as assumption updates will be reflected in the development of the Comprehensive Reliability Plan that follows the completion of the RNA
- **The NYISO does not recommend any modeling changes to the 2025-2026 IRM study to account for potential N-1-1 export limits for the Oswego complex**
  - The NYISO recommends that the ICS continue to monitor the issue to assess whether further consideration of potential modeling enhancements may be warranted in future IRM studies

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Vision

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

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Appendix

(Excerpts from the preliminary and final 2024 RNA results material presented at the July 25, 2024 and September 27, 2024 ESPWG/TPAS meetings)

Year 10 Steady-State Results Summary

(2024 RNA Preliminary Results)

Summer Year 10 Steady-State Thermal Overloads

Zone	Owner	Monitored Element	Norm Rating (MVA)	Cont Rating (MVA)	Worst 1st Contingency	Worst 2nd Contingency	2034 Flow (%)
C	National Grid	Clay - Volney (6) 345 kV	1200	1396	Clay - Nine Mile 1 (8) 345 kV	Clay - Independence (26) 345 kV	116
C	National Grid	Clay - Nine Mile 1 (8) 345 kV	1032	1271	Clay - Volney (6) 345 kV	Clay - Independence (26) 345 kV	112
K	PSEG-LI	Edwards Ave - Riverhead (893) 138 kV	263	303	Wildwood - Riverhead (890) 138 kV	Wildwood - Riverhead (912) 138 kV	109

Winter Year 10 Steady-State Thermal Overloads

Zone	Owner	Monitored Element	Norm Rating (MVA)	Cont Rating (MVA)	Worst 1st Contingency	Worst 2nd Contingency	2034-35 Flow (%)
C	National Grid	Clay - Volney (6) 345 kV	1474	1626	Clay - Nine Mile 1 (8) 345 kV	Clay - Independence (26) 345 kV	101
K	PSEG-LI	Barrett - Barrett OSW (2) 138 kV	213	305	Loss of Gas Fuel Supply at Cricket Valley	Barrett - Barrett OSW (1) 138 kV	121
K	PSEG-LI	Barrett - Barrett OSW (1) 138 kV	218	308	Loss of Gas Fuel Supply at Cricket Valley	Barrett - Barrett OSW (2) 138 kV	120
K	PSEG-LI	East Garden City - Newbridge (462) 138 kV	194	284	Loss of Gas Fuel Supply at Cricket Valley	Base Case	101

- The Edwards Ave - Riverhead overload is due to changing load in eastern Long Island and is first observed in 2030. Coordination with PSEG-LI is ongoing to review the load distribution modeling driving the overload.
- The remaining overloads are a symptom of not having enough system flexibility when nearly all generation is at or near maximum output. 880 MW of compensatory MW in summer measured at Pannell 345 kV and 80 MW of compensatory MW measured at New Scotland 345 kV in winter can resolve these overloads. These overloads are first observed in 2033 summer and 2033-34 winter.

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Year 10 Summer Peak Steady-State Results *(2024 RNA Final Results)*

Monitored Element	Norm Rating (MVA)	Cont Rating (MVA)	Worst 1st Contingency	Worst 2nd Contingency	Flow (%) w/o Flex Loads	Flow (%) w/Flex Loads
Clay - Volney 345 kV Line	1200	1396	Clay - Nine Mile 1 345 kV Line	Clay - Independence 345 kV Line	114	<100
Clay - Nine Mile 1 345 kV Line	1032	1271	Clay - Volney 345 kV Line	Clay - Independence 345 kV Line	111	<100

- Reflecting flexibility of certain large loads mitigates N-1-1 overloads found in preliminary Base Case

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Year 10 Winter Peak Steady-State Results *(2024 RNA Final Results)*

:one	Owner	Monitored Element	Norm Rating (MVA)	Cont Rating (MVA)	Worst 1st Contingency	Worst 2nd Contingency	2034-35 Flow (%)
C	National Grid	Clay - Volney (6) 345 kV	1474	1626	Clay - Nine Mile 1 (8) 345 kV	Clay - Independence (26) 345 kV	101
C	National Grid	Clay - Volney (6) 345 kV	1474	1626	Clay - Independence (26) 345 kV	Clay - Nine Mile 1 (8) 345 kV	101
K	PSEG-LI	Barrett - Barrett OSW (2) 138 kV	213	305	Loss of Gas Fuel Supply at Cricket Valley	Barrett - Barrett OSW (1) 138 kV	121
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K	PSEG-LI	East Garden City - Newbridge (462) 138 kV	194	284	Loss of Gas Fuel Supply at Cricket Valley	Base Case	101

- For the Year 10 winter peak power flow case, certain large loads were modeled as flexible and load was reduced by an additional 600 MW in order to solve the case with an appropriate reserve level. Additional 75 MW of resource injection is modeled in the Base Case to resolve N-1-1 overloads shown above.
- These results are a function of not being able to build the power flow case with sufficient flexibility, rather than representing specific transmission security constraints.

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