

Seasonal Topology Update: Additional Evaluation and Potential Procedure

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Resource Adequacy

ICS Meeting #315

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Agenda

- **Background and Objective**
- **Review of Historical Changes in Emergency Transfer Limits**
- **Additional Assessments**
 - Marginal Transmission Capability Changes Assessment
 - Seasonal Interface Group Limits Assessment
- **Potential System Topology Update Procedure**

Seasonal Topology Whitepaper Overview

■ Background

- The current installed reserve margin (IRM) study process considers the transmission system topology reflective of summer operating conditions updated annually in consideration of the NYISO reliability planning process and operating studies
- All New York Control Area (NYCA) internal transfer capabilities are based on thermal transfer limits, except for the Central-East (Load Zone E to Load Zone F) and UPNY-CONED (Load Zone G to Load Zone H) interfaces which are limited by voltage constraints
- Initial results presented at the 3/4/2026 ICS meeting indicated that marginal increases to individual interface limits during the winter months did not impact loss of load expectation (LOLE). Feedback at the meeting indicated a desire for additional testing on the potential impact of limit increases across multiple interfaces

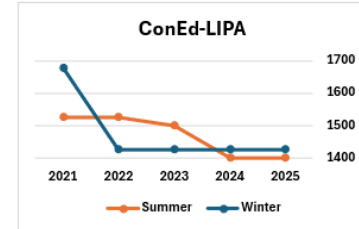
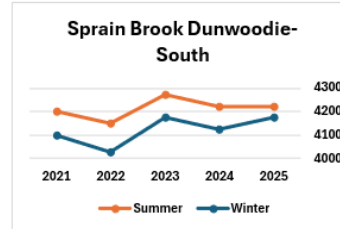
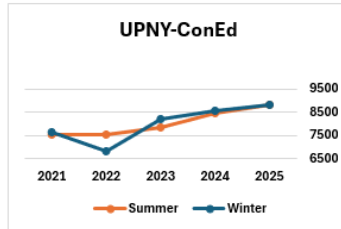
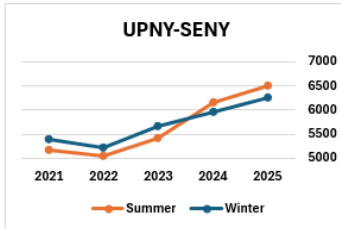
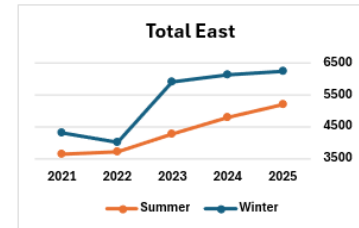
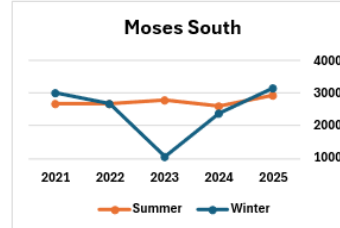
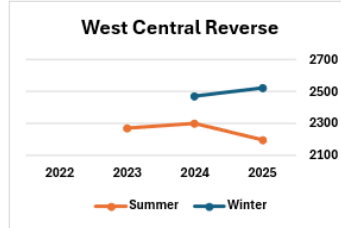
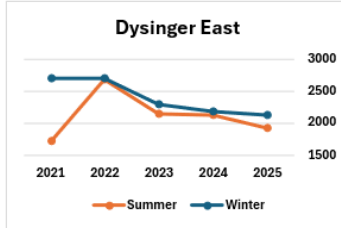
■ Today's Objective

- Review testing results for a system-wide percentage increase of winter transfer limits between
- Discuss testing results and methodology for identifying impactful interfaces with potential decreases in winter transfer limits
- Review initial results of seasonal interface limit changes for group interface limits
- Discuss a potential methodology and procedure for implementing seasonal topology updates in the IRM Study

Review of Historical Changes in Emergency Thermal Transfer Limits

Changes in Thermal Transmission Limits

- The figures below summarize the thermal transmission limits reported in NYISO seasonal operating studies over the last five years
 - More pronounced fluctuations are generally attributed to updated system conditions including individual transmission line outages or equipment additions and changes in power flow behavior
 - Notably, the nature and purposes of these studies for transmission security analyses (i.e., deterministic assessments) are different from the assumptions of probabilistic resource adequacy studies; these differences are important to consider in determining the appropriate limits for use in the IRM study



Marginal Transmission Capability Changes Assessment

Increases on Multiple Internal NYCA Interfaces

- Based on feedback from the 3/4/2026 ICS meeting, additional analysis was performed using the 2026-2027 IRM Preliminary Base Case (PBC) to assess the effects of transmission limit increases during the winter months for multiple interfaces
- A 10% increase to the transmission limits for all internal NYCA interfaces was applied during the winter period (November-April) while retaining the applicable limits used in the summer months (May-October)
 - The Expected Unserved Energy (EUE) and number of hours each interface had power flow at the interface limit during the winter months are provided below
 - A minimal impact to LOLE (-0.0003) was observed, indicating that higher winter transfer limits did not have a significant effect on LOLE under current system conditions.
 - The observed results (summarized in the tables below) were consistent with the observations from the analysis presented at the 3/4/2026 ICS meeting

Hours At Interface Limit in Winter			
Interface	2026-2027 IRM PBC	+10% Winter Limit Increase	Delta
Marcy-South forward	21.5	15.9	-5.6
West-Central reverse	13.0	1.5	-11.5
Y49/Y50 reverse	149.1	107.6	-41.5
Jamaica Ties forward	5.4	4.3	-1.1
Jamaica Ties Reverse	302.3	285.0	-17.3

Reliability Metrics			
Interface	2026-2027 IRM PBC	+10% Winter Limit Increase	Delta
LOLE (days/year)	0.10027	0.09997	-0.0003
EUE (MWh, winter)	21.520	21.254	-0.266
EUE (MWh, annual)	168.504	168.351	-0.153

Decreases on Internal NYCA Interfaces

- **To assess the potential impact of implementing seasonal limits, the NYISO conducted a test on the 2026-2027 IRM PBC with all internal NYCA interface transfer limits decreased during the winter period**
 - Material changes in the number of hours at the transmission limit during the winter months when all internal NYCA interface limits were decreased by 10% were observed on the following interfaces: Central-East forward, Y49/Y50 reverse, and the Jamaica Ties forward and reverse limits
 - All other internal NYCA interfaces were not measurably impacted by a seasonal decrease in transmission limit, or are not reasonably assumed to have risk of a decreased winter transfer limit capability as supported by previous NYISO operating studies
- **The interfaces identified as potentially impactful following the system-wide 10% decrease were isolated and studied with the individual limits decreased by 10% during the winter months**
 - No material change in LOLE was observed except with an isolated 10% decrease to the Jamaica Ties reverse limit
 - EUE and hours at transmission limit during the winter months were recorded

Interface Subject to 10% Winter Limit Decrease	LOLE	LOLE Delta	Winter EUE (MWh)	Winter EUE Delta (MWh)
Central-East forward	0.10027	0.0000	21.421	0.001
Y49/Y50 reverse	0.10027	0.0000	21.422	0.002
Jamaica Ties forward	0.10027	0.0000	21.419	-0.001
Jamaica Ties reverse	0.10038	+0.0001	21.451	0.031

Seasonal Interface Group Limits Assessment

Group Limit Changes

- **The NYISO conducted the following tests to assess the potential impact of coincident changes to interface limits based on observations in past NYISO operations studies, planning assessments, and previous seasonal topology testing efforts**
 - The Total-East interface group (which includes the Marcy-South (E-G) and Central-East (E-F) interfaces): simultaneous increase on the Marcy-South interface and decrease on the Central-East interface, which is limited by voltage constraints, during the winter months
 - The UPNY-SENY interface group (which includes the Marcy-South (E-G) and Capital-Hudson Valley (F-G) interfaces): simultaneous increases on both interfaces during the winter months
 - Simultaneous increase on upstate internal interface transfer limits (all A-F interfaces) and a decrease on downstate internal interface transfer limits (all G-K interfaces) during the winter months

Interface Group	Interfaces	Winter Limit Change	LOLE	Delta from Base Case (0.1)
Total East	Central-East	-10%	0.10027	0.00000
	Marcy-South	+10%		
UPNY-SENY	Marcy-South	+10%	0.10027	0.00000
	Capital-Hudson	+10%		
Upstate-Downstate	Load Zones A-F	+10%	0.10262	0.00235
	Load Zones G-K	-10%		

Observations

- **No material impact on LOLE during the winter months was observed with the changes made to the Total-East and UPNY-SENY interface groups**
- **An impact on LOLE was observed in the Upstate-Downstate simultaneous increase/decrease assessment**
 - The results indicate that a decrease in the downstate winter interface limits (i.e., reduced flow capability downstate) would not be mitigated by an increase in upstate transmission capability during the winter months
 - It is important to note that the tested winter limit changes are not representative of the magnitude of potential transfer limit changes anticipated with seasonal topology updates; the assessment was conducted for testing purposes only
- **Based on these tests, winter LOLE risk in the 2026-2027 IRM study model was not observed to be materially impacted by increases or decreases in transmission capability during the winter period**
 - As winter risks increases, the NYISO recommends monitoring the effects of seasonal topology updates on resource adequacy metrics as part of the annual PBC development

Potential System Topology Update Procedure

Potential Seasonal Topology Update Procedure

- **The topology model for the IRM study should continue to be informed by NYISO reliability studies, NYISO seasonal operating studies, and supplementary NYISO transfer limit studies**
 - Limits for the Y49/Y50 and Jamaica Ties interfaces will continue to be provided by the Transmission Owners
- **Preliminary recommendation for seasonal topology update process:**
 - For the 2027-2028 IRM study topology update, consider the results of the NYISO Operating Study for Summer 2026 and the NYISO Operating Study for Winter 2025-2026 during PBC development
 - If significant or impactful modifications to the winter seasonal topology assumptions are identified in the NYISO Operating Study for Winter 2026-2027, consider additional updates as part of Final Base Case (FBC) development

Questions?

Our Mission and 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

