

Installed Reserve Margin (IRM) Study: Seasonal Topology Update Process

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ICS Meeting #313

February 4, 2026

Seasonal Topology Whitepaper Overview

■ Background

- The current IRM study process considers the transmission system topology reflective of summer operating conditions, which are updated annually in consideration of the NYISO reliability planning process and operating studies

■ Objective

- Identify potential updates to IRM study topology assumptions to capture winter interface limits and improve alignment with planning study assumptions

■ Today's Objective

- Provide background on current topology assumptions and update process for the IRM study

IRM Study Topology

- **The IRM study uses a bubble-and-pipe transportation model to represent system topology, and transfer limits between the modeled Load Zones are based on interface limits**
 - These interface limits are established through technical studies with system conditions and equipment status.
- **The current IRM topology model include the following interfaces (see topology diagram in the appendix for more details):**
 - Internal NYCA interfaces
 - Interties between NYCA and external control areas
 - Interfaces within certain external control areas

IRM Study Topology Update Process

- **The topology model in the IRM study is updated both annually and on an as-needed basis:**
 - Changes to the topology definition are incorporated when there is changes to the transmission system (e.g. addition of the Champlain Hudson Power Express (CHPE) line for the 2026-2027 IRM study)
 - Interface limits are updated on an annual basis using the following information:
 1. Updated Northeast Power Coordinating Council (NPCC) database information for interties with external control areas and interfaces within the external control areas
 - Seasonal transfer limits are incorporated when they exist in the NPCC database
 2. Direct inputs from Transmission Owners for certain areas (e.g. Load Zones J and K)
 - These transfer limits are based on summer conditions
 3. Remaining internal NYCA interface limits are based on applicable NYISO long-term reliability planning studies and operating studies
 - While the studies consider seasonal system conditions, the IRM study currently models the transfer limits based on summer conditions
- **This whitepaper will focus on topology inputs that are based on NYISO studies (Item #3 above)**

Sources for Interface Transfer Limits

Internal NYCA Interface

- **The internal NYCA interfaces are modeled in the IRM study with transfer limits between pairs/grouping of NYCA Load Zones.**
- **The interface transfer limits in the IRM study consider both directions of power flow between all NYCA load zones as constraints**
 - Aggregations of NYCA Load Zones define relevant interfaces for NYISO planning and operations studies. Bidirectional transfer limits may not be relevant for all interfaces based on study assumptions
- **These interface transfer limits are determined by the most limiting phenomenon of the system conditions, (i.e., thermal, voltage or stability limitations).**
 - Thermal transfer limits are based on the emergency transfer limits, which are based on the short-term emergency (STE) limits of lines and after the N-1 contingency is applied to the system
 - Voltage and stability limits are based on applicable NERC, NPCC, and NYSRC reliability rules and standards
 - All NYCA internal interfaces 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) which are limited by voltage constraints.

NYISO Reliability Planning Studies

- **The topology model of the IRM study is intended to provide consistency with the Resource Adequacy model within the NYISO's reliability planning studies**
 - The Reliability Needs Assessment (RNA) is performed by NYISO biennially and assesses potential reliability needs over a forward-looking 10-year horizon.
 - The Short-Term Assessment of Reliability (STAR) evaluations are based off the most recent RNA and are updated on a quarterly basis
- **The topology model within the reliability planning studies is updated through the RNA process, focusing on longer-term timeframe (i.e., Year 4-10)**
 - The STAR may include topology updates to the RNA if near-term changes to the system are identified
- **Currently, the majority of the interface transfer limits in the IRM study are consistent with the assumptions used in the most recent RNA or STAR**
 - Interface transfer limits that are based on NYISO operating studies are identified on slide 8

NYISO Operating Studies

- **In advance of each summer and winter Capability Period, the NYISO performs seasonal reviews of projected thermal transfer capabilities that are used for real-time grid operations**
 - The studies are publicly available and approved by the Operating Committee (OC) in April-May for the upcoming summer and October-November for the upcoming winter
 - The NYISO seasonal operating study timeline may not align with IRM study timelines for development of the preliminary base case (PBC)
- **The NYISO also performs transfer limit analysis for voltage-limited interfaces and stability constraints in advance of major equipment or power flow changes**
 - These studies inform the topology assumptions in both the IRM and planning studies
- **Currently, the following interface limits in the IRM study model are based on operating studies:**
 - Dysinger East (A-B), West Central (B-C), Central East (E-F), Central East and Marcy Group (E-F/G), UPNY-ConEd (G-H), and Sprain Brook Dunwoodie South (I-J)

Next Steps

Milestone	Anticipated Timeline
Identify candidate studies and data sources for winter topology and special considerations for studied interfaces	Q2 2026
Identify a methodology and sources for determining winter interface limits for potential IRM study consideration	Q2 2026

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



Appendix

2026-2027 IRM Study: Internal NYCA Interfaces

Abbreviation	Full Name	From	To	Limiting Phenomenon	Forward Limit	Reverse Limit
A_TO_B	DYSINGER EAST	NY_A	NY_B	Thermal	1925	1999
B_TO_C	WEST CENTRAL	NY_B	NY_C	Thermal	1500	2225
C_TO_E	VOLNEY EAST	NY_C	NY_E	Thermal	5650	1999
D_TO_E	MOSES SOUTH	NY_D	NY_E	Thermal	3500	1600
E_TO_F	CENTRAL EAST	NY_E	NY_F	Voltage	3885	1999
E_TO_G	MARCY SOUTH	NY_E	NY_G	Thermal	2300	1600
F_TO_G	CAPITAL HUDSON VALLEY	NY_F	NY_G	Thermal	5400	1999
G_TO_H	UPNY - CONED	NY_G	NY_H	Voltage	7050	1999
H_TO_I	MILLWOOD SOUTH	NY_H	NY_I	Thermal	8450	1999
I_TO_J	SPRNBK/DUNWOODIE SOUTH	NY_I	NY_J	Thermal	4400	1999
I_TO_K	Y49/Y50	NY_I	NY_K	Thermal	1293	460
J_TO_K	JAMAICA TIES	NY_J	NY_K	Thermal	305	505

- These are the limits used as constraints in the 2026-2027 IRM study. A MW value of 1,999 is a place-holder for interface limits that are not explicitly calculated because power does not typically flow in the reverse direction

